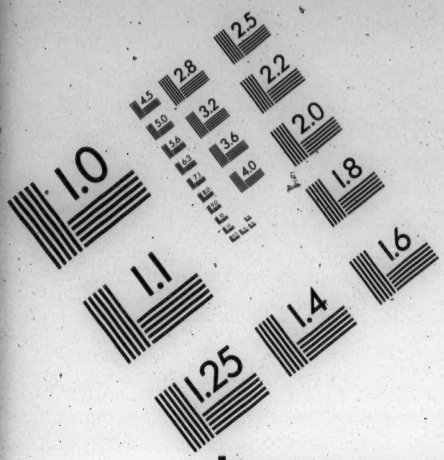
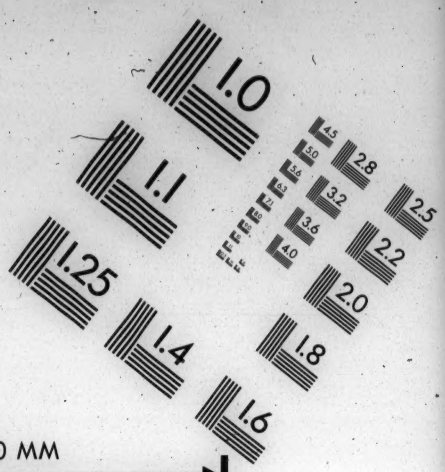
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DEPARTMENT OF THE ARMY
MICROFORM
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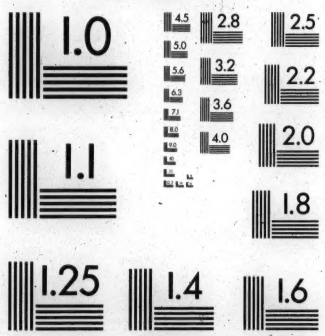
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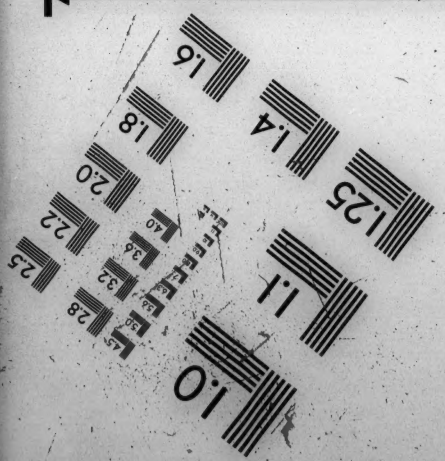
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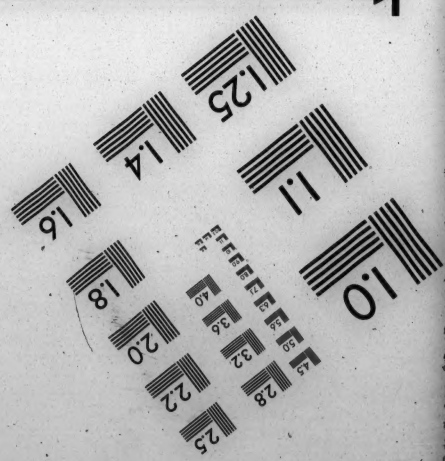
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200 MM





250 MM

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Catalogue of the Alabama Polytechnic Institute

1896

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▶   5  090     ǂb  ¶
▶   6  049     AAAA ¶
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▶   8  245 10  Catalogue of the Alabama Polytechnic Institute ǂh [microform] ¶
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▶  10  260     Auburn, Ala. : ǂb The College, ǂc 1894-1899. ¶
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▶  12  310     Annual ¶
▶  13  362 0   1893-94-1898-99. ¶
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ǂd 1997. ǂc   microfilm reels : negative ; 35 mm. ¶
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▶  18  610 20  Agricultural and Mechanical College of Alabama ǂx Curricula ǂx
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the State Agricultural and Mechanical College of Alabama ¶
▶  20  785 00  Alabama Polytechnic Institute. ǂt Catalogue of the Alabama
Polytechnic Institute ¶
▶  21  830  0  USAIN State and Local Literature Preservation Project ¶
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ALABAMA POLYTECHNIC INSTITUTE

CATALOGUE

1896-97

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1896/97
c.2

RN UNIVERSITY
LIBRARY

AU
LD271
.A76
1896/97
c.2

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YLORD BROS. Inc.
Syracuse, N. Y.
Stockton, Calif.

1896-97
C.2

CATALOGUE

OF THE

Alabama Polytechnic Institute.

STATE

AGRICULTURAL AND MECHANICAL

COLLEGE.

1896-97.

AUBURN, ALABAMA.

MONTGOMERY, ALA.:
THE BROWN PRINTING CO., PRINTERS AND BINDERS.
1897.

TRUSTEES.

His Excellency, JOSEPH F. JOHNSTON, President..... ..Ex-officio.
J. O. TURNER, Superintendent of Education.....Ex-officio.

J. G. GILCHRIST..... (term expires 1903)..... Hope Hull.
TANCRED BETTS.....(term expires 1903).....Huntsville.
WALTER C. WHITAKER.....(term expires 1903).....Tuscaloosa.

JONATHAN HARALSON.....(term expires 1901).....Selma.
THOS. WILLIAMS.....(term expires 1901).....Wetumpka.
J. A. BILBRO .....(term expires 1901).....Gadsden.

I. F. CULVER..... ...(term expires 1899).....Union Springs.
J. C. RICH.....(term expires 1899).....Mobile.
H. CLAY ARMSTRONG .....(term expires 1899).....Auburn.
R. H. DUGGAR.... .....(term expires 1899).. .....Gallion.

E. T. GLENN, Treasurer.
J. H. DRAKE, M. D., Surgeon.

AU
LD271
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1896/97
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AV

BARKSDALE
FEB 26 '54

FACULTY AND OFFICERS.

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President and Professor of Physics and Astronomy.

OTIS D. SMITH, A. M.,
Professor of Mathematics.

P. H. MELL, M. E., PH. D.,
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Professor of Mechanical Engineering and Director of Laboratory.

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Professor of Physiology and Veterinary Science.

MAGNUS O. HOLLIS, 1st Lieut. 4th Inf. U. S. A. (West Point),
Commandant and Professor of Military Science.

E. R. MILLER, PHAR. M., M. Sc.,
Professor of Pharmacy.

J. F. DUGGAR, M. Sc.,
Professor of Agriculture.

F. S. EARLE,
Professor of Biology and Horticulture.

207880

C. F. BAKER, B. Sc.,
Assistant Professor of Zoology.

B. H. CRENSHAW, M. E.,
Instructor in Mechanic Arts.

C. L. HARE, M. Sc.,
Instructor in Chemical Laboratory.

R. J. TRAMMELL, C. E.,
Instructor in Mechanic Arts.

H. H. KYSER, E. and M. E.,
Instructor in Physical Laboratory.

W. L. FLEMING, B. Sc.,
Assistant Librarian.

W. J. BEESON, B. Sc.,
Assistant in English.

W. M. WILLIAMS, B. Sc.,
Assistant in English and Mathematics.

G. B. KELLEY, B. Sc.,
Assistant in Mathematics.

C. N. ALFORD, B. Sc.,
Assistant in Civil Engineering and Drawing.

FRANK BOYKIN, B. Sc.,
Assistant in Mechanic Arts.

J. Q. BURTON, B. Sc.,
Assistant in Chemistry.

H. S. HENDERSON, B. Sc.,
Assistant Librarian of Experiment Station.

J. B. EDWARDS, B. Sc.,
Assistant in Electrical Engineering.

B. A. TAYLOR, B. Sc.,
Assistant in Veterinary Science.

OFFICERS

OF THE

AGRICULTURAL EXPERIMENT STATION.

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION.

I. F. CULVER.....Union Springs.
J. G. GILCHRIST.....Hope Hull.
H. CLAY ARMSTRONG.....Auburn.

STATION COUNCIL.

WM. LEROY BROUN.....President.
P. H. MELL.....Botanist.
B. B. ROSS.....Chemist.
C. A. CARY.....Veterinarian.
J. F. DUGGAR.....Agriculturist.
F. S. EARLE.....Biologist and Horticulturist.
C. F. BAKER.....Entomologist.

ASSISTANTS.

J. T. ANDERSON, PH. D.....First Assistant Chemist.
C. L. HARE, M. Sc.....Second Assistant Chemist.
R. G. WILLIAMS, M. Sc.....Third Assistant Chemist.
T. U. CULVER.....Superintendent of Farm.

GROUNDS and EXPERIMENT STATION

OF THE

STATE AGR'C'L and MECH'L COLLEGE

OF ALABAMA

ENGR'G DEPT. AUBURN, ALA.

Scale 1in.=200ft.

1892

INDEX

1. Main College Building
2. Chemical Laboratory
3. Langdon Hall (upper floor)
4. Wood Work Room (basement floor)
5. Forge and Foundry
6. Machine Room
7. Dynamo and Engine Room
8. Plant Laboratory
9. Dwelling
10. Private Property
11. Horticultural Grounds
12. Dwelling of Agriculturist
13. Office of Agriculturist
14. Barns
15. Meter Room and Gas House
16. Dairy
17. Fish Ponds

COLLEGE AVENUE

PROVIDENCE AVE.

CAMPUS



View of College Campus

OBJECT OF THE COLLEGE.

The leading object of the College, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and the applications of science.

In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline obtained by the study of language and other sciences is not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

The College, in fact, is a distinctive school of industrial science—or POLYTECHNIC INSTITUTE—a title which, by resolution of the Trustees, is permitted to be inscribed in the catalogue,—and work of great value to the youth of the State is being accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The College now possesses facilities for giving laboratory instruction in applied science in the following departments:

I—IN AGRICULTURE AND HORTICULTURE.

The farm contains 226 acres, and is supplied with illustrative specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

II—IN MECHANIC ARTS.

The laboratory of mechanic arts is used as an auxiliary in industrial education, and as a school in manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is *instructive* in character, as in any other laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the College each student enters this school, and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus by associating manual and mental training, to educate thoroughly the student for the duties of life, whatever may be his vocation. There is no

attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall, 90 x 50 feet, and is provided with a twenty-five horse-power Corliss engine, a planer, circular saw, band-saw, two scroll saws, a buzz planer, twenty-four stands each with a lathe and a full set of tools, and thirty benches for carpentry work with the tools requisite for construction.

A brick building, 30 x 87 feet, with two rooms, has been constructed especially for instruction in working iron.

One room is equipped with sixteen forges and tools required for a forge department, and the other with a Colliau cupola furnace, a core oven, a brass furnace, moulding benches, a foundry crane constructed by students, and special tools for use in a foundry.

The forge and foundry rooms are furnished with a Sturtevant fan and exhauster, supplied with power from a ten horse-power engine, constructed by the students in mechanic arts.

The machine department occupies a brick building, 50 x 50 feet, and is equipped with ten engine lathes, one speed lathe, one 20-inch drill press, one 10-inch sensitive drill, one post drill, one 16-inch shaper, one 5-foot planer, one universal milling machine, a corundum tool grinder, a small emery grinder, a universal cutter and reamer grinder, a No. 1 Brown & Sharpe universal grinding machine, and a power hack saw.

The chipping and filing department is arranged with benches, vises and tools for twelve students.

The tool room is well supplied with special tools for use in instruction, including a machine for grinding twist drills. The rooms are lighted with electricity whenever necessary.

III—IN PRACTICAL CHEMISTRY.

The chemical laboratory is supplied with modern apparatus, and in its equipment affords excellent facilities for instruction in practical chemistry and for investigation.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research. The building contains a large general laboratory that will accommodate sixty students, a lecture room with capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

IV—IN ELECTRICAL ENGINEERING.

The electrical laboratory is well supplied with modern appliances for instruction in electrical engineering. It occupies two large rooms in the basement, and is equipped with many fine instruments of precision: Kelvin deka-ampere balance, Kelvin graded current and potential galvanometers, Cardew voltmeter, Weston voltmeters and ammeter, Queen's magnetic vane voltmeter and ammeter, Thomson watt-meter, Hartman and Braun voltmeter, Kohlrausch ammeter, Wood ammeter, Weston alternating current voltmeter, Weston direct reading watt-meter, Queen's "Acme" testing set, Kelvin electrostatic voltmeter, Edison ammeters, and many other current-measuring instruments, resistance boxes, Wheatstone bridges, condensers, telephones, batteries, magnets, etc.

The dynamos occupy a separate building and are operated by a twenty-five horse-power Atlas engine, and a thirty-five horse-power Westinghouse engine. In this building are installed the following dynamos:

Edison compound 12 Kilo-watt generator, Thomson-Houston 150 light 110 volt dynamo, Weston 150 volt 25 ampere generator, Crocker-Wheeler one-horse power motor, Brush 6 arc light dynamo with lamps, two Baxter street car

motors, 20-horse power each (so connected as to be used as direct or alternating current motors or generators), one 5 horse-power three phase motor, one General Electric 20-horse power motor, two bi-phase induction motors (built by students), one 9 light Thomson-Houston arc machine, two phase alternator and 500 volt 20 ampere generator, made by students. There is also in connection with this department at the experiment station, a ten-horse power motor, made by students, which is operated by the 500 volt generator in the dynamo room.

V—IN PHYSICS.

In the College building provision is made for elementary laboratory work in the department of physics. Special rooms in the basement are appropriated for this purpose, and are equipped with the necessary appliances for instruction in practical physics.

VI—IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate thirty students, with an excellent collection of minerals.

VII—IN BOTANY.

In the work of the agricultural experiment station there is a botanical garden under the charge of the professor of botany, investigations in botany are given special attention, and opportunities are offered advanced students for practical work in a laboratory especially fitted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research. This department is provided with Auzoux's clastic models of seeds and flowers for teaching botany.

VIII—IN BIOLOGY.

The laboratory in this department adjoins the lecture room of the professor, and is furnished with tables, excellent microscopes and appliances for investigation. Each student of the class works under the supervision of the professor.

IX—IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, models of bridges, etc., is provided for the use of the students, and the customary exercises in the field are given.

X—IN DRAWING.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing-room, that will accommodate fifty students, is provided with tables, lock boxes, etc.

XI—IN MECHANICAL ENGINEERING.

The mechanical course has been extended to include experimental work in mechanical engineering.

The apparatus available for this instruction is as follows: A 25-horse power Harris-Corliss engine, a 35-horse power Westinghouse engine, a 25-horse power Atlas engine, two 9-horse power engines constructed by students, the boilers belonging to the regular power plant, a small engine and boiler for the special purpose of making efficiency tests, a Deane duplex steam pump, a four-horse power gasoline engine, an Ericsson hot air engine, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, thermometers, a pyrometer, scales, a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester with weights for correcting the standard gauge, a 35,000-pound testing machine, a Henning micrometer extensometer, and a Carpenter calorimeter with the necessary auxiliary apparatus for determining the heating value of different kinds of coal.

This work is now carried on in the lower story of the annex to the chemical laboratory. This room is 30 x 60 feet in size and was specially designed and fitted up for this purpose. A three-inch steam main has been laid from the boiler house, thus securing a steam supply in the building for all work requiring it. The work is thoroughly practical, and it is desired to extend it as rapidly as the funds available for the purchase of apparatus will allow.

XII—IN PHYSIOLOGY AND VETERINARY SCIENCE.

There has been constructed for the veterinary department a new and separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, and museum with skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

XIII—IN PHARMACY.

The laboratory of this department occupies the second floor of the annex to chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations.

The students work in the laboratory with the professor, from five to eight hours, six days in the week.

It is expected to increase the facilities as means are available.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is under the charge of Lieut. M. O. Hollis, 4th Infantry, U. S. A.

It is supplied with new cadet muskets and accoutrements for the corps, and for artillery practice, with two three-inch rifle guns, carriages and limbers.

COLLEGE BUILDINGS.

The frontispiece is a representation of the main College building. It is 160 x 71 feet, and contains forty-five rooms. This building is not used for dormitories for students, but is appropriated to purposes of instruction and investigation.

It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc.

LANGDON HALL.

This is a two-story building, 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

The first story is appropriated to the laboratory of mechanic arts.

THE CHEMICAL LABORATORY,

As shown on the opposite page, is a two-story structure, 40 x 60 feet, with a rear projection, 35 x 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and terra-cotta ornamentation.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains improved working tables, with water, gas and every necessary appliance for chemical work.

The second story contains a lecture room and also a room used at present for the pharmaceutical laboratory. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and industrial chemistry, prominent subjects taught in the institution.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building containing rooms for mechanical engineering, pharmacy, analytical chemistry and drawing.



CHEMICAL LABORATORY.



GYMNASIUM.

The recently constructed gymnasium is situated at the west end of the athletic grounds and contains one room, 80 x 40 feet, with truss-roof and strong beams 22 feet above for fastening the usual fixtures. It is equipped with Spalding's gymnasium apparatus and is open to all students at stated hours, under the care of an instructor.



GRADUATES IN 1896.

CLASS OF 1896.

HONOR GRADUATES.

COURSE IN CHEMISTRY AND AGRICULTURE.

Albert Lea Alexander.....Georgia.

COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

William Henry Harrison Trammell.....Lee.

COURSE IN CIVIL ENGINEERING.

George Bates Kelley.....Jefferson.

GENERAL COURSE.

Walter Lynnewood Fleming.....Pike.

DEGREES.

BACHELOR OF SCIENCE.

Albert Lea Alexander.....Georgia.
Charles Nutting Alford.....Marshall.
Andrew Beirne Andrews.....Tennessee.
Marion Joseph Bancroft.....Mobile.
William James Beeson.....Etowah.
John Simeon Bennett.....Lee.
Sidney Josiah Bross.....Coosa.
Joseph Quarterman Burton.....Lee.
Henry Rozer Casey.....Jefferson.
LeRoy Abda Christian.....Shelby.
James Washington Culver.....Lee.
Hubert Alberto Drennen.....Jefferson.
Oba DeVan Dumas.....Wilcox.
Jesse Boland Edwards.....Talladega.
John Cuthbert Farley.....Lee.
Walter Lynnewood Fleming.....Pike.
John Louis Glenn.....Butler.
Annie Florence Heard.....Lee.
Hampton Sanders Henderson.....Talladega.

Richard Sparks Jackson.....Jefferson.
George Bates Kelley.....Jefferson.
William Berrian Kelly.....Montgomery.
Garry DeVon King.....Georgia.
James Lewis Moulder.....Georgia.
Julian Berry Oglesby.....Georgia.
John Albin Reeves.....Cherokee.
Benjamin Asbury Taylor.....Autauga.
Walker Reynolds Tichenor.....Georgia.
William Abner Tippin.....Florida.
William Henry Harrison Trammell.....Lee.
Robert Edward Lee Weathers.....Randolph.
Estelle Love Whitaker.....Lee.
Frank Lewis Whitman.....Lee.
William Martin Williams.....Georgia.
Bryce Hewitt Wilson.....Franklin.

MASTER OF SCIENCE.

Henry Hinds Peevey (B. Sc., '95).....Madison.
Harry Howell Smith (B. Sc., '95).....Lee.

ELECTRICAL AND MECHANICAL ENGINEER.

Henry Hearst Kyser (B. Sc., '95).....Talladega.
James Claude Thomason (B. Sc, '95).....Randolph.
John Adams Wills (B. Sc., '95).....Lee.

PHARMACEUTICAL CHEMIST.

Solon Lycurgus Coleman (B Sc., '95).....Marengo.

MINING ENGINEER.

John Presley Slaton (B. Sc., '94, C. E., '95).....Macon.

DISTINGUISHED STUDENTS.

Students who receive a grade above 90 in three studies in the freshman class, in four in the sophomore, in five in the junior, and in six in the senior, are distinguished for excellence in scholarship, and are awarded

HONOR CERTIFICATES.

The following students received honor certificates in 1896:

SENIOR CLASS.

Albert Lea Alexander	Georgia.
Andrew Beirne Andrews	Tennessee.
William James Beeson	Etowah.
Hubert Alberto Drennen	Jefferson.
Oba DeVan Dumas	Wilcox.
Jesse Boland Edwards	Talladega.
Walter Lynnewood Fleming	Pike.
Annie Florence Heard	Lee.
Hampton Sanders Henderson	Talladega.
George Bates Kelley	Jefferson.
James Lewis Moulder	Georgia.
William Henry Harrison Trammell	Lee.
Estelle Love Whitaker	Lee.
Bryce Hewitt Wilson	Franklin.

HONOR STUDENTS IN THE JUNIOR CLASS.

COURSE IN CHEMISTRY AND AGRICULTURE.

Edwin Boyce Joseph	Montgomery.

COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

Clarence Neil Jones	Montgomery.

COURSE IN CIVIL ENGINEERING.

George Nathan Mitcham	Georgia.

GENERAL COURSE.

Peyton Graves Clark	Montgomery.

JUNIOR CLASS.

Peyton Graves Clark	Montgomery.
Thomas Ganaway Conner	Macon.
William Welch Hill	Talladega.
John Buford Hobdy	Bullock.
George Michael Holley	Georgia.
Clarence Neil Jones	Montgomery.
Edwin Boyce Joseph	Montgomery.
George Nathan Mitcham	Georgia.
William Jacob Nixon	Tennessee.
Frederick Lloyd Tate	Russell.
William Tilman Warren	Montgomery.
Reuben David Webb	Coosa.

SOPHOMORE CLASS.

Thomas Harrison Clower	Lee.
William Menefee Dean	Georgia.
George Oliver Dickey	Crenshaw.
Clifford Lamar Edwards	Lee.
Francis Williams Hare	Lee.
Charles Edward Harrison	Florida.
Harry Streety Houghton	Jefferson.
William Earle Hudmon	Lee.
Joseph Wood King	Georgia.
Peter Mastin McIntyre	Montgomery.
Henry Edmund Memminger	South Carolina.
William Augustus Mitchell	Georgia.
Robert Stewart Parker	Sumter.
Alexander Simpson Pow	Jefferson.
Almuth Cunningham Vandiver	Talladega.

FRESHMAN CLASS.

George Price Cooper	Madison.
James Francis Dobbin	Florida.
Flake Earle Farley	Lee.
Isham Fennell McDonnell	Madison.
George Madison Wheeler	Madison.
Julien Chandler Yonge	Florida.

CATALOGUE OF STUDENTS.

FOR THE SESSION OF 1896-97.

GRADUATE STUDENTS.

[*Residence is Alabama when State is not given.*]

NAME.	RESIDENCE.
Albert Lea Alexander	Georgia.
Charles Nutting Alford	Marshall.
William James Beeson	Etowah.
Frank Boykin	Lee.
Joseph Quarterman Burton	Lee.
George Webster Duncan	Lee.
Jesse Boland Edwards	Talladega.
Walter Lynnewood Fleming	Pike.
Hampton Sanders Henderson	Talladega.
Walter Pearce Holcombe	Mobile.
George Bates Kelley	Jefferson.
Benjamin Asbury Taylor	Autauga.
Walker Reynolds Tichenor	Georgia.
Sheldon Lyne Toomer	Lee.
William Henry Harrison Trammell	Lee.
William Martin Williams	Georgia.

UNDERGRADUATE STUDENTS.

SENIOR CLASS.

Emile Glines Abbott	Georgia.
William Kirk Armstrong	Lee.
Erister Ashcraft	Lee.
Richard Manning Boykin	S. Carolina.
Edgeworth Stephens Casey	Jefferson.
Peyton Graves Clark	Montgomery.

Robert Walter Collins.....Hale.
Thomas Ganaway Conner.....Macon.
George Leonard Faucett.....Randolph.
William Alexander Fitzgerald.....Georgia.
Arthur Williamson Greene.....Chambers.
Gaston Greil.....Montgomery.
Joseph Herzfeld.....Tallapoosa.
John Fletcher Heard.....Lee.
William Welch Hill.....Talladega.
John Buford Hobdy.....Bullock.
George Michael Holley.....Georgia.
William Alexander Hood.....Jefferson.
Cassius Rex Hudson.....Lee.
Clarence Neil Jones.....Montgomery.
Edwin Boyce Joseph.....Montgomery.
Adus Edwin Killebrew.....Dale.
Earle Foster Lee.....Lee.
William Parker Leonard.....Georgia.
Warren Horton McBryde.....Mobile.
William Wrice McLeran.....Macon.
George Nathan Mitcham.....Georgia.
Wade Hampton Negus.....Mississippi.
Charles Johnston Nelson.....Dallas.
William Jacob Nixon.....Tennessee.
Benjamin Sweat Patrick.....S. Carolina.
James Lawrence Pollard.....Russell.
Leonard Callaway Pratt.....Bibb.
John Purifoy.....Lee.
John Wesley Purifoy.....Perry.
Berry Lathum Scott.....Texas.
Oliver John Semmes.....Mobile.
Samuel Toliver Slaton.....Macon.
Frederick Lloyd Tate.....Russell.
Merrick Dowdell Thomas.....Chambers.
Paul Vines.....Tallapoosa.
William Tilman Warren.....Montgomery.
Reuben David Webb.....Coosa.

Noble James Wiley.....Montgomery.
George Wrigley.....Georgia.

JUNIOR CLASS.

Lemuel Sledge Allen.....Marengo.
Erin Black.....Lee.
William Brown Beeson.....Jackson.
Carter Berry.....Tallapoosa.
Arthur Julian Bingham.....Talladega.
Mary Wright Boyd.....Lee.
William Hamill Bruce.....Montgomery.
Alexander Humphreys Clark.....Montgomery.
Thomas Harrison Clower.....Lee.
Henry Neal Coleman.....Lowndes.
Carmotte Ashley Cobb.....Montgomery.
William Menefee Dean.....Georgia.
George Oliver Dickey.....Crenshaw.
Duncan Patterson Dixon.....Talladega.
Clifford Lamar Edwards.....Lee.
Richard Roe Eppes.....Marengo.
Frank Farley.....Lee.
Frank Reese Frazer.....Lee.
William Shelby Garner.....Shelby.
John Wommack Giddens.....Crenshaw.
Elmer Wynn Gray.....Georgia.
Jonathan Haralson.....Dallas.
Pearl Hanson.....Lee.
Francis Williams Hare.....Lee.
Charles Edward Harrison.....Florida.
Harry Streety Houghton.....Jefferson.
William Earle Hudmon.....Lee.
John William Jepson.....S. Carolina.
Joseph Wood King.....Georgia.
Absalom Mason Kennedy.....Montgomery.
George Clarence Lazenby.....Butler.
Jessie Hamilton Lockhart.....Georgia.
George Edward Mason.....Shelby.

John Richard McCalla ..... Lee.
Peter Mastin McIntyre ..... Montgomery.
Henry Edmund Memminger ..... S. Carolina.
William Augustus Mitchell ..... Georgia.
Benjamin Otey Minge ..... Marengo.
Frank Green Morriss ..... Talladega.
Julia Hill Moore ..... Lee.
John St. Clair Paden ..... Etowah.
Robert Stewart Parker ..... Sumter.
Harry John Pettus ..... Montgomery.
Alexander Simpson Pow ..... Jefferson.
Annie Lucinda Purifoy ..... Lee.
Arthur McBride Ransom ..... Georgia.
Halbert Clyde Ray ..... Geneva.
Harvey Owen Sargent ..... Franklin.
Robert Pinkney Scarbrough ..... Russell.
Marie Louise Scott ..... Lee.
Selwyn Sutton Scott ..... Lee.
Newton Caraway Smith ..... Shelby.
Clifford West Stewart ..... Montgomery.
William Livingston Stewart ..... Montgomery.
William Bee Stokes ..... Marion.
Edward Wadsworth Stone ..... Montgomery.
Cecil Pitts Stowe ..... Lee.
Rush Price Strong ..... Mobile.
Joseph Wilson Sutcliffe ..... Louisiana.
Thomas Harrison Tutwiler ..... Jefferson.
Almuth Cunningham Vandiver ..... Talladega.
Bishop Billing Warwick ..... Talladega.
John Wesley Williams ..... Lee.
Joseph Leonard Wood ..... Mobile.
Neander Montgomery Woods ..... Tennessee.
William Wren ..... Mobile.

SOPHOMORE CLASS.

LeRoy Jones Allen ..... Marengo.
Jesse Maldrie Atkinson ..... Dale.
Alston Boyd ..... Tennessee.

William Bowdon Beard.....Pike.
Bailey Edgar Brown.....Morgan.
Emmett Gale Buck.....Mobile.
Thomas Greene Bush.....Calhoun.
Joseph Peyton Carson.....Lee.
John Wesley Camp.....Georgia.
Osborn Henry Chapman.....Pike.
Henry Perkins Chappell.....Bullock.
Charles Wallace Collins.....Hale.
George Davis Collins.....Hale.
McNeill Crawford.....Lee.
Colonel Seldon Crew.....Coosa.
Frederick Robert Daly.....Jefferson.
Bolivar Davis.....Jefferson.
Claude Davidson.....Georgia.
James Francis Dobbin.....Florida.
Allan Willis Elkins.....Texas.
Flake Earle Farley.....Lee.
Arthur Henry Feagin.....Bullock.
Hugh Matherson Fenn.....Barbour.
Gilford Cadwell Gilder.....Montgomery.
William Armistead Gilder.....Montgomery.
John Ross Gleun.....Lee.
Henry Everette Harvey.....Lee.
Charles Thomas Hightower.....Georgia.
Felix Grundy Horn.....Sumter.
Charles Vines Ingram.....Lee.
Emmett Francis Jackson.....Lee.
Rufus Lee Jenkins.....Lee.
Walter Eldridge Johnson.....Madison.
Joseph Landman.....Madison.
Howard Felix Landman.....Madison.
William Bibb Leedy.....Jefferson.
William Elliott Matthews.....Madison.
Thomas Herring McAdory.....Jefferson.
Isham Fennell McDonnell.....Madison.
Frank McLean.....Montgomery.

Barton Harris McQueen.....Montgomery.
Charles Henry Merritt.....Chilton.
Chadwick Wiley Minge.....Marengo.
Hartley Allen Moon.....Coosa.
Osburn Rogers Moore.....Butler.
Collet Henry Munger.....Jefferson.
Daniel Robbins Nettles.....Monroe.
Angelo Marvin Nowlin.....DeKalb.
Francis Franek Oser.....Louisiana.
James Royden Peabody.....Georgia.
William Hamet Pinson.....Sumter.
Frank Gordon Rabb.....Lowndes.
Lawrence Bratton Rainey.....DeKalb.
Archie McDonnell Robinson.....Madison.
John Osgood Rush.....Lee.
William Oscar Scroggs.....Georgia.
Benjamin Lewis Schuessler.....Chambers.
William Leon Sellers.....Bullock.
James Cary Slaton.....Macon.
Wade Hampton Shipp.....Georgia.
John Cherry Smith.....Lee.
William Boykin Skinner.....Marengo.
Dozier Turner.....Elmore.
George Newman Ward.....Henry.
James Alfred Ward.....Madison.
James Luther Watson.....Wilcox.
Thomas William Wert.....Morgan.
George Madison Wheeler.....Madison.
John Rutledge Williams.....Jefferson.
Moses Conrad Wright.....Macon.
Julien Chandler Yonge.....Florida.

FRESHMAN CLASS.

James Aiken.....Etowah.
James Anderson Allen.....Jefferson.
Earle Reese Anderson.....Georgia.
Robert Pierce Baldwin.....Lee.
Guy French Boyd.....Lee.

Jesse Wright Boyd.....Lee.
Abner Mason Buchanan.....Lee.
Roscoe Bulger.....Tallapoosa.
Judson Lamar Burke.....Lee.
Salmon Holmes Burns.....Lee.
Kelly Walker Burwell.....Madison.
Ellis Alford Carter.....Lee.
Murray Mooreman Campbell.....Lauderdale.
Frank Bovard Chapman.....Louisiana.
William LeVert Christian.....Shelby.
Sterling Rich Coleman.....Wilcox.
Warren Lewis DeBardeleben.....Autauga.
William Crawford Dowdell.....Lee.
William Beach Dozier.....Georgia.
Isaac Ross Edwards.....Talladega.
Robert Emmett Fitzgerald.....Georgia.
Sherman Guy Forbes.....Henry.
Joseph Henry Glover.....Georgia.
James Olney Goggans.....Tallapoosa.
Edgar Jones Graham.....Tennessee.
Henry Daniel Green.....Georgia.
John Dabney Hamilton.....Marion.
Wesley Moss Harrison.....Lee.
Edward Zellars Heard.....Lee.
Samford LeRoy Jordan.....Russell.
Walter Atlee Jordan.....Elmore.
Wilbur Eldrad Kelley.....Jefferson.
Strother Trabue Key.....Jefferson.
Howard Malcolm Kilpatrick.....Georgia.
John Maples.....Russell.
James Guy Marcrum.....Georgia.
George Matthews Marks.....Montgomery.
Marvin Hilliard McCalla.....Lee.
Henry Clyde McDavid.....Florida.
John Thomas McIntosh.....Tallapoosa.
Kenneth Bethune McKenzie.....Butler.
Edward Pinson McLennan.....Barbour.

Lafayette Murdoch Meriwether.....Montgomery.
David Harrison Minge.....Marengo.
Jordan Holsey Mitchell.....Lee.
Llewellyn Perry Motley.....Lee.
Richard Gordon Mynatt.....Talladega.
Lawson Harrison Nunnelly.....Tennessee.
Clovis Marvin Pearce.....Marion.
Hiram Perry Powell.....Georgia.
Cleveland Curry Purifoy.....Lee.
Carlock Rand.....Madison.
Samuel Lowrie Robertson.....Jefferson.
James Richard Rutland.....Chambers.
John Watson Rutland.....Lee.
William Stowe Rutledge.....Lee.
William Winfred Shuff.....Talladega.
Joseph Bingham Strayhorn.....Tennessee.
Frederick Blount Shepard.....Mobile.
John Marion Tamplin.....Lee.
Mallory Hunt Taylor.....Georgia.
Henry Barnett Thompson.....Lee.
John Felix Walker.....Dallas.
Alfred Taylor Whiteside.....Tennessee.
James Waldo Woodruff.....Georgia.

SPECIAL AND IRREGULAR STUDENTS.

Abbreviations: Ph.—Pharmacy; E. & M. E.—Electrical and Mechanical Engineering; C.—Chemistry; Ag.—Agriculture; C. E.—Civil Engineering.

John Cocke Abernathy.....PH.....Florida.
Paul Otey Anderson.....Lee.
Harriet Lavinia Dabney Bondurant.....Lee.
Charles Lewis Bragaw.....PH.....Lee.
Lewis Edward Byrum.....E. & M. E....N. Carolina.
Charles Alexander Carmon.....E. & M. E....Texas.
James Hardin Crawford.....PH.....Georgia.
Samuel Walter Cunningham.....Mobile.
John Leigh Creary.....Florida.

Arthur Henry Davis		Mobile.
Marion Dawson		Elmore.
Charles Washington Drake	PH	Madison.
Ellis Madison Duncan		Franklin.
Luther Noble Duncan		Franklin.
Ramon Antonio Eraso		Venezuela.
Oliver Hazard Perry Fant	E. & M. E	S. Carolina.
Robert Clark Fenton	C. E	Connecticut.
William Bullock Fleming	AG	Montgomery.
Michael Thomas Fullan	E. & M. E	Georgia.
Bernard Law Greene	E. & M. E	Etowah.
William LeGarde Hamilton	PH	Talladega.
Fletcher Dumas Harvey	PH	Lee.
Walter Avery Henson		Tennessee.
Miller Reese Hutchison	E. & M. E	Mobile.
John Tait Jenkins	PH	Madison.
John David Johnston	PH	Pike.
Emmett Armistead Jones	PH	Marengo.
Charles Tulane Kidd	PH	Montgomery.
Kate Meade Lane		Lee.
Richard Chalmers Leavell		S. Carolina.
Earle Benjamin Lentz	C. E.	Mobile.
Frederick Lee Martin		Autauga.
John Nelson Mixon		Conecuh.
Walter Wilson McGowan	PH	Shelby.
George Fleming Moore		Montgomery.
Ashleigh Strudwick Moses	E. & M. E.	Baldwin.
Thomas Joseph Norris		Jefferson.
John Morgan Richeson	AG	Hale.
Samuel Bernard Rice		Montgomery.
Miguel Josè Romero	C. & AG	Venezuela.
Joseph Schwartz	PH	Marengo.
James Barrie Shivers	PH	Perry.
Benjamin Franklin Seay		Bullock.
Ambrose Lee Scarbrough	PH	Russell.
Sidney Ewing Simpson		Montgomery.
Clara Tennille		Montgomery.

Fannie Louise Thomas		Lee.
Frank Waters Van Ness	E. & M. E	Tennessee.
Henry Beecham Visscher	PH	Florida.
Daniel Wheeler	E. & M. E	Mobile.
Richard Clarke Wilson	PH	Wilcox.

SUB–FRESHMAN CLASS.

Stearnes Pearson Baker	Tallapoosa.
Joseph Nathaniel Barker	Franklin.
George Douglas Bush	Georgia.
John Thomas Camp	Jefferson.
Andrew Crozier Cameron	Jefferson.
William James Cameron	Jefferson.
William Austin Campbell	Tennessee.
Samuel Anthony Cefalu	Jefferson.
Henry Reed Childress	Etowah.
John Isham Dorsey	Lee.
Hunter Dunnaway	Wilcox.
Marvin Joshua Ellis	Autauga.
Philip Washburn Gooch	Jefferson.
Cecil Groves	Sumter.
Charles Calhoun Guy	S. Carolina.
James George Hardy	Dallas.
Wallace Benjamin Harrison	Talladega.
Hubbard Hobbs Kelly	Madison.
Henry James Lamar	Georgia.
Walter Douglas Lamar	Georgia.
Leon Phillippe LeHardy	Georgia.
James Randolph Livingston	Georgia.
Benjamin Lee McGee	Georgia.
Andrew McCord	Lee.
John Alexis Matthews	Madison.
Samford Mitchell Meadows	Lee.
Benjamin Baldwin Meriwether	Montgomery.
Alva Tuttle Moreland	Russell.
Abram Hill Mitchell	Lee.
Peter Preer Myhand	Lee.

Samuel Bradley Nettles	Monroe.
Charles Daniel Odom	Jefferson.
Marvin Franklin Owens	Cleburne.
Frank Connor Pinkston	Chilton.
James Edward Prouty	Etowah.
Edgar Prescott Rutland	Lee.
Thomas Elmer Rutland	Chambers.
Jesse Gilbert Sells	Georgia.
Charles Lewis Sudduth	Lee.
Sidney Goode Tait	Wilcox.
Elijah Albert Turner	Lee.
Herbert George Weedon	Barbour.
John Shuler Williamson	Chilton.

SUMMARY.

Graduates	16
Senior Class	45
Junior Class	66
Sophomore Class	71
Freshman Class	65
Special and Irregular Students	51
Total in College Classes	314
Sub-Freshman Class	43
Total	357

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	277	Geology	46
History	196	Civil Engineering	12
French	47	Electrical Engineering	55
German	33	Mechanical Engineering	46
Latin	144	Biology	16
Mental Science	25	Drawing	188
Political Economy	41	Mechanic Arts	204
Mathematics	279	Military Tactics	319
Chemistry	138	Mineralogy	5
Chemical Laboratory	60	Physical Laboratory	56
Agriculture	112	Physiology	52
Physics	168	Veterinary Science	45
Botany	89	Pharmacy	27

MILITARY ORGANIZATION,

1896-97.

President,

W. L. BROUN.

Commandant,

M. O. HOLLIS, 1st Lieut. 4th Infantry, U. S. A.

Surgeon,

J. H. DRAKE, M. D.

Battalion Staff.

Cadet Captain J. B. HORDY, Assistant to Commandant.
Cadet 1st Lieutenant G M. HOLLEY, Adjutant.
Cadet 1st Lieutenant W. H. NEGUS, Quartermaster.
Cadet Sergeant P. M. McINTYRE, Sergeant Major.
Cadet Sergeant C. W. STEWART, Quartermaster Sergeant.

Cadet Captains.

1. W. T. WARREN,
2. E. B. JOSEPH,
3. B. S. PATRICK,
4. P. G. CLARK.

Cadet First Lieutenants.

1. JNO. PURIFOY,
2. C. J. NELSON,
3. J. L. POLLARD,
4. B. L. SCOTT,
5. R. D. WEBB,
6. W. J. NIXON,
7. C. N. JONES,
8. W. A. FITZGERALD.

Cadet Second Lieutenants.

1. E. S. CASEY,
2. R. W. COLLINS,
3. W. A. HOOD,
4. G. N. MITCHAM.

Cadet First Sergeants.

1. H. E. MEMMINGER,
2. W. A. MITCHELL,
3. A. C. VANDIVER,
4. F. W. HARE.

Cadet Sergeants.

1. J. C. ABERNATHY,
2. J. W. WILLIAMS,
3. J. W. SUTCLIFFE,
4. G. E. MASON,
5. G. O. DICKEY,
6. W. M. DEAN,
7. T. H. CLOWER,
8. W. B. STOKES,
9. H. S. HOUGHTON,
10. W. L. STEWART,
11. J. S. PADEN,
12. A. McB. RANSOM,
13. C. L. EDWARDS,
14. A. H. CLARK,
15. R. P. STRONG,
16. J. B. SHIVERS,
17. F. R. FRAZER.

Cadet Corporals.

1. J. C. YONGE,
2. I. F. MCDONNELL,
3. G. M. WHEELER,
4. W. E. MATTHEWS,
5. J. F. DOBBIN,
6. J. LANDMAN,
7. T. W. WERT,
8. C. W. MINGE,
9. C. T. HIGHTOWER,
10. T. G. BUSH,
11. H. F. LANDMAN,
12. B. L. GREENE,
13. J. R. PEABODY,
14. W. B. LEEDY,
15. O. H. CHAPMAN,
16. L. B. RAINEY.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be of good moral character. To enter the freshman class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography, and History of the United States.

2. English—(a) An examination upon sentences containing incorrect English. (b) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar, and division into paragraphs.

I. *Reading.* The composition in 1897 will be upon subjects drawn from one or more of the following works: Shakespeare's *Julius Cæsar* and Longfellow's *Evangeline*, Irving's *Sketch Book*, Scott's *Marmion*, Hughes's *Tom Brown at Rugby*, Dickens's *David Copperfield*, Scott's *Ivanhoe*, Southey's *Life of Nelson.*

The candidate will be required to present evidence of a general knowledge of the subject matter, and to answer simple questions on the lives of the authors. This part of the examination is intended to test only a general knowledge of the substance of the books.

II. *Study and Practice.* This part of the examination presupposes the thorough study of each of the following works:—

Shakespeare's *Merchant of Venice;* Burke's *Speech on Conciliation with America;* Macaulay's *Essay on Milton.*

Preparation and examination on these works will be necesary before the student is classed as regular.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers; the metric system; percentage, including interest and discount; proportion; extraction of square and cube roots. (b) Algebra, to quadratic equations.

Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Cæsar, in addition to the above subjects.

For admission to the higher classes, students should be

prepared to stand a satisfactory examination in all of the studies of the lower classes, as shown in the courses of study. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on those subjects.

ADMISSION ON CERTIFICATE.

Applicants will be admitted without examination on presenting a certificate from any of the CERTIFICATE SCHOOLS named herein.

The following educational institutions having made application to be correlated to this College, and having presented an approved course of study, are hereby declared to be CERTIFICATE SCHOOLS, and are granted the privilege set forth in the following resolution:

"Students from certificate schools will be admitted to the "freshman class *without examination* upon the certificate of "the president or principal showing definitely that such "students have completed satisfactorily all the studies "required for admission, as stated in the catalogue, and are "otherwise admissible."

CERTIFICATE SCHOOLS.

University Military School, Mobile.....J. D. Wright.
*Verner Military Institute, Tuscaloosa..W. H. Verner.
*University School, Montgomery.....J. M. Starke.
*Mt. Willing High School, Mt. Willing..J. D. Garrett.
State Normal School, Jacksonville.....J. Forney.
Male Academy, Huntsville.....Puryear & Wyatt.
*State Normal College, Florence.....J. K. Powers.
Furman Academy, Livingston.....L. A. Cockrell.

*Applicants are admitted to the sophomore class on approved certificates from these institutions.

High School, Opelika.....J. M. Smallwood.
University Military School, Clanton....E. Y. McMorriss.
N. A. Agricultural School, Athens.....M. K. Clements.
W. Ala. Agricultural School, Hamilton..Jas. E. Alexander.
Eutaw Male Academy, Eutaw.....H. C. Horton.
Waverly Institute, Waverly.....A. W. Holstun and J. D. Lane.
Taylor's School, Birmingham.....W. P. Taylor.

ADMISSION OF YOUNG WOMEN.

The privilege of becoming students in this College is granted by the Trustees to young women of mature mind and character, on the following conditions:

The applicant must be eighteen years of age, and if a candidate for a degree, be able to pass a satisfactory examination in each of the four subjects as named below.

If the applicant is a candidate for admission as a special or irregular student, she must be able to pass a satisfactory examination in two of the subjects named.

(a) In English—Proficiency in spelling and punctuation; Grammar (Whitney's Essentials of English); Rhetoric (Lockwood, Abbott's How to Write Clearly, Genung); Scudder's American Prose Selections; Scudder's American Poems.

(b) In History—Macy's Our Government; Chambers's History of the United States; Myers's General History.

(c) In Mathematics—Arithmetic; Algebra, including quadratic equations, logarithms and series; Plane and Solid Geometry; Plane and Analytical Trigonometry, as in Wentworth.

(d) In Latin—Grammar, including the forms and syntax; Jones's Latin Prose Composition; Translation of selections from Cæsar, Nepos, Virgil, Cicero's Orations, Cicero's Letters, or the equivalent.

The equivalents of these subjects, as in above text-books, may be substituted.

Botany will constitute a required part of the general course for young women who are candidates for a degree.

When admitted, upon complying with the conditions above stated, they may enter upon the study of any subject taught in the College, and join any class, for which upon examination they may be found qualified. The only condition imposed will be that they engage in earnest study, and attend the exercises regularly. They will board in the town with private families and attend college only at the hours of their exercjses.

The Trustees authorize the Faculty to admit a candidate for a degree at the age of seventeen, provided she is able to comply with all the requirements for admission in the four subjects named and the application meets with its approval.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 15th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the freshman class are admitted to the sub-college department.

They will be advanced to full admission to the freshman class when they are qualified to pass satisfactorily the required examinations.

Students upon their arrival at Auburn will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of electing studies in the lower classes is not granted to young students nor to their parents. The

Faculty will assign a student on admission to that class of a prescribed course for which he is qualified; and for special reasons, approved by the Faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age that are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study for which they may be qualified.

Regular students who fail to pass satisfactory final examinations in any one study become special students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students, candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical and Natural Sciences, with their applications; Agriculture; Biology; Mechanics, Astronomy, Mathematics, Drawing; Civil, Electrical and Mechanical Engineering; Physiology and Veterinary Science; Pharmacy; English, French, German, and Latin Languages; History, Political Economy, Mental and Moral Sciences.

These studies are arranged in regular courses so as to offer a liberal and practical education as a preparation for the active pursuits of life.

There are five degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. Sc.) and requiring four years for its completion:

I. COURSE IN CHEMISTRY AND AGRICULTURE.
II. COURSE IN CIVIL ENGINEERING.
III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.
IV. GENERAL COURSE.
V. COURSE IN PHARMACY.

There are also two partial courses, each requiring two years for its completion:

VI. TWO-YEAR COURSE IN AGRICULTURE.

VII. TWO-YEAR COURSE IN MECHANIC ARTS.

Course I includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agricultural and chemical pursuits.

Course II includes the principles and applications of the sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course III includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged for the profession of electrical and mechanical engineering.

Course IV has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching or in some commercial or manufacturing business.

Course V includes, besides the general education of course IV in the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Courses VI and VII have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, will be awarded a certificate of proficiency in said subject.

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English.

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Students who complete either of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

Those who have completed the general course in each department of the school of mechanic arts, and are qualified, can enter upon a more extended technical course in mechanical engineering.

COURSE IN MINING ENGINEERING.

Students who have received the degree of B. Sc. in engineering, civil, or electrical and mechanical, or who have prosecuted an equivalent course of study, can enter upon a special course of mining engineering, which includes the following subjects of study:

Industrial Chemistry, Analytical Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, with practical work in the field, Mining Machinery with the applications of Steam and Electricity to the various operations connected with the exploitation of mines.

The student, if a candidate for a degree, will also be required to prosecute the necessary studies in that course of engineering in which he has not graduated.

This course of study will be under the charge of the professors of geology, chemistry, civil and electrical and mechanical engineering.

SPECIAL ONE-YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of scientific agriculture.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this College, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CHEMISTRY.
II. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.
III. AGRICULTURE.
IV. BOTANY.
V. MINERALOGY.
VI. BIOLOGY.
VII. TECHNICAL DRAWING.
VIII. MECHANIC ARTS.
IX. PHYSICS.
X. ELECTRICAL ENGINEERING.
XI. MECHANICAL ENGINEERING.
XII. PHYSIOLOGY AND VETERINARY SCIENCE.
XIII. PHARMACY.

NOTE.—Special work in English or History may be taken by students in the general course as a substitute for laboratory work.

I.—COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Physiology.	2. Physiology.	2. Physiology.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
4. Botany (Lab'y).	4. Botany (Lab'y).	4. Botany (Lab'y).
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy (c).	2. Political Economy.
2. Mental Science.	2. Mental Science.	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
5 Biology.	5. Biology.	5. Biology.
2. Agricultur'l Ch'm'try.	2. Agricultural Ch'm'try.	2. Agricultur'l Ch'm'try.
1. Military Science.	1. Military Science.	2. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.

(a) Begins March 1st.
(b) Also Practical Agriculture.
(c) Begins Feb. 15th.

II.—COURSE IN CIVIL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry	3. General Chemistry.	3. General Chemistry.
2. Agriculture (b).	2. Agriculture (b).	2. Agriculture (b).
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French, or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y, Mech. Arts (c).	6. Lab'y, Mech. Arts (c)	6. Lab'y, Mech. Arts (c).
1. Field Work, Engin'g.	2. Field Work, Engin'g.	2. Field Work, Engin'g.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature (d)	2. Political Economy (d)	2. Political Economy (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.

(a) Begins March 1st.
(b) For Agriculture may be substituted Physical Laboratory.
(c) Or Mineralogy.
(d) For Eng. Lit. and Pol. Econ. may be substituted French or German.

5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
4. Mech. Eng., Lab'y.	4. Mech. Eng., Lab'y.	4. Mech. Eng., Lab'y.
Field Work, Engin'g.	Field Work, Engin'g.	Field Work, Engin'g.

III.—COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week. In freshman and sophomore classes the same studies are prescribed as in Course II in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French, or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
4. Electrical Engin'g.	4. Electrical Engin'g.	4. Electrical Engin'g.
3. Mech. Engineering.	3. Mech. Engineering.	3. Mech. Engineering.
4. Mechanical Drawing.	4. Mechanical Drawing.	4. Mechanical Drawing.
4 Electrical Lab'y.	4. Electrical Lab'y.	4. Electrical Lab'y.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. Eng. Literature (a).	2. Political Economy (a).	2. Political Economy (a).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Electrical Engin'g.	3. Electrical Engin'g.	5. Electrical Engin'g.
5. Mech. Engineering.	5. Mech. Engineering.	5. Mech. Engineering.
2. Electrical Designing.	2. Electrical Designing.	2. Electrical Designing.
6. Electrical Lab'y.	6. Electrical Lab'y.	6. Electrical Lab'y.
4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.
1. Military Science.	1. Military Science.	1. Military Science.

(a) French or German may be substituted.

IV.—GENERAL COURSE.

The numerals opposite the subjects indicate the numbers of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English	3. English.	3. English.
2. History.	2. History.	3. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
3. Latin.	3. Latin.	3. Latin.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y Work (b).	6. Lab'y Work (b).	6. Lab'y Work (b).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy (c).	2. Political Economy.
2. Mental Science.	2. Mental Science.	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science.	1. Military Science.
6. Lab'y Work (b).	6. Lab'y Work (b).	6. Lab'y Work (b).

(a) Begins March 1st.

(b) The student may elect the laboratory of any department for which he may be qualified.

(c) Begins February 15th.

V.—COURSE IN PHARMACY.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3 Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3 General Chemistry.
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. Physics.	3. Physics.	3. Physics.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Botanical Lab'y.	4. Botanical Lab'y.	4. Botanical Lab'y.
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
9. Pharmaceutical Lab'y.	9. Pharmaceutical Lab.	9. Pharmaceutical Lab'y.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Biology.	5. Biology.	5. Biology.
7. Toxicology.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Pharmacy.	4. Pharmacy.	4. Pharmacy.
9. Pharmaceutical Lab'y.	9 Pharmaceutical Lab'y.	9. Pharmaceutical Lab'y.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Science.	1. Military Science.	1. Military Science.
3. Bacteriology.	3. Materia Medica.	3. Materia Medica.

VI.—TWO-YEAR COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathmatics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	5. Drawing.	3. Drawing.
12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

VII.—TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3 General Chemistry.	3. General Chemistry.
4. Agriculture.	4. Agriculture.	4. Agriculture.
2. Physiology.	2 Physiology.	2. Physiology.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
12. Practical Agricult're.	12. Practical Agricult're.	12. Practical Agricult're.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SCHEDULE OF EXERCISES.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
I. 8-9	4. Algebra. 3. Latin. 1. and 2 Drawing. 1. Elec.Engine'r'g 2. Mec.Engine'r'g 1. Biology.	3. Physiology. 4. Geometry. 3. Latin. 2. German. 1 and 2 Drawing. 2. Botany. 1. Mental Science 1. Elec.Engine'r'g	4. Algebra. 3. Latin. 1 and 2 Drawing. 1. Vet. Science. 1. Elec.Engine'r'g	3. Physiology. 4. Geometry. 3. Latin. 2. German. 1 & 2 Drawing. 2. Botany. 1. Mental Science 1. Elec. Engin'r'g	4. Algebra. 3. Latin. 1 and 2 Drawing. 1. Veterinary Sci. 1. Elec.Engine'r'g	Exerc's in Elocution.
II. 9-10	4. English. 3. Chemistry. 2. Civ. Engineer'g 2. Latin. 1. Calculus. 1. Biology. 2. Elec.Engine'r'g	4. History. 3. Agriculture. 2. Civ. Engineer'g 2. Botany. 1. Physics. 1. Elec.Enginee'g	4. English. 3. Chemistry. 2. Civ. Engineer'g 2. Latin. 1. Calculus. 2. Vet. Science. 2. Elec.Engine'r'g	4. History. 3. Agriculture. 2. Civ. Engine'r'g 2. Botany. 1. Physics. 2. Elec.Engine'r'g	4. English. 3. Chemistry. 2. Civ. Engine'r'g 2. Latin. 1. Calculus. 2. Mech.Engin'r'g 2. Vet. Science.	Military Drill.
III. 10-11	3. English. 2. Physics. 1. German. 1. Civ. Engine'r'g 1. Biology. 1. Mec.Engine'r'g	3. History (1, 2). 3. Botany (2, 3). 1. Biology. 1. Civ.Engineer'g 4. English. 1. Mec.Engine'r'g 2. French.	3. English. 2. Physics. 1. German. 1. Civ. Engine'r'g 1. Biology. 1. Mech.Engin'r'g	3. History (1, 2). 3. Botany (2, 3). 1. Civ. Engineer'g 4. English. 1. Mech.Engin'r'g 2. French.	3. English. 2. Physics. 1. German. 1. Civ.Enginee'r'g 4. History (3). 1. Mec.Engine'r'g	Mechanic Arts. Chemical Laborat'ry. Electric'l Laborat'ry. Physical Laboratory. Veterinary Clinics. Biologic'l Laborat'ry. Field Engineering.

SCHEDULE OF EXERCISES—CONTINUED.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
IV.	4. Physics (1, 2).	4. Latin. 3. Drawing.	4. Physics (1, 2). 4. Latin (3). 3. History 1, 2)	4. Latin.	4. Physics (1, 2).	
11-12	4. Agriculture (3) 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. English (1, 2). 1. Pol. Econ.(2, 3) 4. Mechanic Arts.	2. Agriculture. 2. Mathematics. 1. Chemistry. 1. French.	3. Botany (2, 3). 2. Mathematics. 2. Chemistry. 1. English (1, 2). 1. Political Economy (2, 3). 4. Mechanic Arts.	2. Agriculture. 2. Mathematics. 1. Chemistry. 3. Physiology (3) 1. French.	4. Agriculture (3) 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. Military Sci. 4. Mechanic Arts.	3. Mechanic Arts. Chemical Laborat'ry. Electric'l Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laborat'y. Field Engineering.
V. 12-1	4. Drawing. 2. Mathematics. 2. English. 4. Mechanic Arts. 1. Elec. Designi'g 1. French.	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 1. Latin. 4. Mechanic Arts. 2. Mec. Engin'r'g 2. German. 1. Elec. Designi'g	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 3. Latin. 4. Mechanic Arts. 1. Elec. Designing 2. Milit'ry Tactics	3. Mechanic Arts. Chemical Laborat'ry. Electric'l Laborat'ry. Physical Laboratory. Veterinary Clinics. Biological Laborat'y. Field Engineering.
P. M. VI, VII. 2-4	4. Mechanic Arts. 3. Field W'rk Agr 1 & 2 Laboratory Chemistry 1 & 2 Field W'rk, Engineering 1 & 2 Mach. W'rk Elec. Lab. Work. Physical Labor'y.	3. Mechanic Arts 2. Mineralogy Laboratory Military Drill (*). 3. Mech Lab'tory Elec. Lab'y Work 1 and 2 History.	4. Mechanic Arts. 3. Field W'rk Agr 1 & 2 Laboratory Chem. 1 & 2 Field W'rk, Engineering. 1 & 2 Mach. Work Ex'cis. in Elocut'n Elec. Lab. Work. Physical Labor'y.	3. Mechanic Arts. 2. Mineralogy Laboratory. Military Drill (*). 3. Mech. Labor'y. Elec. Lab. W'rk. 1 and 2 History.	4. Mechanic Arts. 3. Field W'rk, Agr 2. French. 1 & 2 Lab. Chem. 1 & 2 Field W'rk, Engineering. 1 & 2 Mach. W'rk Ex'cis in Elocut'n Elec. Lab. Work. Physical Labor'y.	

Chapel services daily at 7:45 a. m.
Number prefixed denote classes—1 denotes senior, 2 junior, etc. Numbers affixed—(1), (2), (3),—denote terms.
*From 4:30 to 5:30 p. m.

DEPARTMENTS OF INSTRUCTION.

PHYSICS AND ASTRONOMY.

PRESIDENT BROUN.

The instruction is given by recitations from text-books and lectures, illustrated by experiments. The first part of the course is occupied with elementary rational mechanics, treated graphically.

This is followed by a full discussion of molecular mechanics; while due prominence is given to principles, frequent reference is made to the applications of science.

The studies of the junior class include the properties of matter, units of measure, force, work, energy, kinematics, kinetics, mechanic powers, friction, pendulum, molecular forces of solids, liquids and gases, theory of undulations, heat, electricity, magnetism, etc.

The studies of the senior class include optics and astronomy.

Post-graduate Course. This includes the study of analytical mechanics, and requires a knowledge of differential and integral calculus.

PHYSICAL LABORATORY.

Instructor H. H. Kyser has charge of the classes in elementary physics and of the physical laboratory. In elementary physics the students are taught mechanics, solving problems by the elements of graphical statics, and are required to do such work in the physical laboratory as is adapted to their attainments. A part of their time is given to learning practical telegraphy by the use of instruments provided for that purpose.

The physical laboratory is equipped with a number of instruments of foreign and American manufacture It contains a standard metre bar, a horizontal comparator, a Kater reversion pendulum, a cathetometer with micrometer, a spectrometer furnished with prisms, crystal holder and flat diffraction grating, made by the Société Genevoise, a spectroscope by Browning, with a large amount of spectrum apparatus, Carré's ice machine, Becker's balances, a small dividing engine and a vertical comparator, both the latter made at the College in the laboratory of mechanic arts. There is also a large amount of minor apparatus, thermometers barometers, calorimeters and apparatus for experimentally determining the parallelogram of forces, for determining rolling and sliding friction, torsion and flexure, specific gravity. etc.

The student in this laboratory is required to ascertain experimentally various physical laws, h nce in all exercises there is something to measure. From these measures he is required to find the law connecting the quantities involved. Results of experiments are required to be entered, in tabular form, together with diagrams, etc., in a laboratory note-book.

MATHEMATICS.

PROF. SMITH.

The general course for the first two years embraces the first year, algebra and geometry, six books; second year, solid geometry, plane and spherical trigonometry, surveying, mensuration.

Two objects are sought to be attained: first, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given to the sophomore class in farm, town and government land surveying, dividing land, mapping, plotting, and computing areas, etc.; also in the theory, adjustment and use of instruments.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

Mensuration includes an extended course in measurements of heights and distances, plane, rectilinear and curvilinear figures, surfaces and volumes.

The completion of this course, common to all students, lays the foundation for the pure and applied mathematics of the mechanical and engineering courses. Analytical geometry, descriptive geometry, and calculus are pursued in the mechanical and engineering courses. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of the principles and formulas.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Wentworth's Trigonometry and Surveying, Wentworth's Analytical Geometry, Faunce's Descriptive Geometry, Nicholson's Calculus, Johnson's Differential Equations, Osborne's Problems, Peck's Determinants.

GEOLOGY AND BOTANY.

PROF. MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other natural deposits of minerals in the State. The origin of ore deposits, mineral springs and geological relations of soils are carefully studied.

There is also a course of advanced work in practical geology for post-graduate students. This subject is pursued by applicants for the degrees of master of science and mining engineer.

The junior class in civil engineering studies mineralogy through the entire session. This work consists of a thorough course in blow-pipe analysis of the ordinary minerals,

and lectures upon crystallography with instruction how to measure crystals and determine the physical constants of minerals. An effort is made to familiarize the student with all the economic ores and the rocks entering into the composition of soils.

Botany.—The students of the sophomore class begin the study of botany the first of March and continue it through the session. Analytical work is made an important feature. This class is provided with plants from the fields, and taught how to determine their specific names. The work is sufficiently exhaustive to enable the student, after completing the course, to name any of the ordinary weeds and grasses that he will encounter in this section.

In the junior class, in the course of chemistry and agriculture, two terms are devoted to systematic and structural botany, and to advanced laboratory work with the microscope in the preparation of specimens showing plant structure; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microscopes of the most improved patterns, and all necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students.

The third term is devoted to the study of the physiology of plants in order to understand the functions of the various organs after completion of the work in the histological laboratory.

FACILITIES FOR WORK.

Geology.—The department is equipped with models of Mount Shasta, the earthquake of 1887 in Japan, glass crystals for teaching crystallography; charts and maps of the geology of America and Europe; Colt's lantern complete with oil, oxy-hydrogen and automatic electric lamps; a large assortment of fine lantern slides representing geological formations in this country and abroad; well equipped mineralogical laboratory for thirty students, supplied with a collection of representative minerals; and models of crystals.

Botany.—The facilities for teaching this subject are as follows: Auzoux's clastic models of seeds and flowers; a large collection of pressed plants of Alabama and other sections, mounted and catalogued. There is also a laboratory for practical work in botany

equipped with slate-topped tables for twenty students; dissecting and compound microscopes by Zeiss, Leitz, and Bausch & Lomb; projection microscopic apparatus; microtomes by King and Bausch & Lomb; all the necessary glass ware and smaller dissecting instruments required in a well equipped laboratory. The Zeiss compound microscope used by the professor for experiment work in connection with the station is supplied with Abbe's illuminating apparatus, slide changers, Abbe's camera lucida polarizers, apochromatic objectives (16 mm, 8 mm, 4 mm, and homogeneous immersion), oculars (2, 3, 8, 12, 18 and photographic), eye-piece with micrometer. This laboratory is well lighted with gas and electricity and with a good exposure for ample sunlight.

In connection with the department there is a photographic dark room and an excellent photographic outfit consisting of cameras varying in size from 4 x 5 to 6½ x 8½ inches; Bausch & Lomb's professional photo-micro camera extending to eight feet; Zeiss's anastigmat photographic lens, 6½ x 8½, fitted with Bausch & Lomb's diaphragm shutter, and Zeiss's wide angle lens, 6½ x 8½, all mounted in aluminium; Clark's lens fitted with diaphragm shutter; Darlot lens, 4 x 5; the accessory apparatus and chemicals required for first class work in photography.

The students have access to the botanical garden where experiments in grass culture and many other plants of interest to the farmer are conducted by the professor.

TEXT-BOOKS.

LeConte's Geology, Williams's Practical Geology, Tarr's Economic Geology, Dana's Mineralogy, Gray's Botany, Nelson's Herbarium and Plant Descriptions, Laboratory Guide, and notes of lectures.

CIVIL ENGINEERING AND DRAWING.

PROF. LANE.

CIVIL ENGINEERING.

The special studies in this department begin in the junior class, and require a good knowledge of algebra, geometry, trigonometry and analytical mechanics. They are as follows:

Junior class—Simple, compound, reversed and parabolic curves, turnouts and crossings, leveling, gradients, setting slope stakes, etc.

Special attention will be paid in this class to the location, reconstruction, drainage and maintenance of country roads; and the various pavements and foundations for the same.

Senior class.—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought-iron, steel and other metals; limes, cements, mortars and their manufacture; paints and other preservatives; classification of strains and a general mathematical discussion of same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds; their construction and strains determined mathematically and graphically; common roads, their coverings, location and construction; location and construction of railroads; navigable, irrigation, and drainage canals; river and sea-coast improvements.

Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior class.—Henck's Field Book for Railway Engineers and Byrne's Highway Construction.

Senior class.—Wheeler's Civil Engineering and Von Ott's Graphic Statics.

DRAWING.

All of the students of the freshman and sophomore classes are required to take drawing; but only the students in civil engineering in the junior and senior classes.

The freshman class is taught linear and free-hand drawing. The sophomore class is instructed in the principles of orthographic and isometric projections, shade and shadows, perspective and tinting. In the junior class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and tinting; also sketches of tools and machines, plans and elevations and cross-sections of buildings, and blue prints. The senior class makes topographical drawings, and drawings of machines, roofs,

bridges, etc., to different scales, and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Freshman class.—Kitchener's Geometrical Note Book, Thorne's Junior Course in Mechanical Drawing, and Davidson's Model Drawing.

Sophomore class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, Plates belonging to the College, Keuffel & Esser's Alphabet.

Senior class.—French, English and American plates belonging to the College, Keuffel & Esser's Alphabet.

ENGLISH AND POLITICAL ECONOMY.

PROF. THACH.

OBJECTS AND METHODS.

In this department the students pursue a systematic course in the English language and literature.

Language is the avenue of approach to all knowledge; the interpretation of words is the fundamental process in education of whatsoever kind. A full course of English is, therefore, considered especially important in the technical courses of study that do not include the ancient classics. Accordingly, the course of English is continued throughout the four years of the College curriculum, three hours a week, and is made obligatory upon all students, with the exception of those pursuing the first two years of the course in Latin. In this extended drill in the grammar and literture of the English language, the endeavor is made to afford a training somewhat equivalent to the ordinary course in the classical language.

In view of the ill preparation in languages, especially in their mother tongue, exhibited by many of the candidates for admission to the freshman class, it is deemed advisable, for the sake of honest

work, to devote a portion of the first year to grounding such students in the principles of grammar.

Especial attention is given to the study of the writings, themselves, of leading English authors, since direct contact with literature is considered more profitable than information merely *about* literature.

COURSE OF STUDY.

Freshman class.—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied; study of American authors: Irving, Hawthorne, Holmes, Poe, Bryant, Longfellow.

Lockwood-Whitney's English Grammar, Lockwood's Rhetoric, Kellogg & Reed's English Language.

Sophomore class.—Three hours a week; study of style, analysis of selections of prose and poetry, frequent essays on historic and literary themes.

Genung's Rhetoric, Genung's Rhetorical Analysis, Syle's From Milton to Tennyson.

Junior class.—Three hours a week; lectures on the history of English literature, critical study of English classics, essays.

Pancoast's History of English Literature, Palgrave's Golden Treasury, Macaulay, Carlyle, DeQuincey.

Senior ciass.—Two hours a week, first term. Principles of Criticism, Shakespeare's Julius Cæsar, Hamlet, Dowden's Shakespeare, etc.

ESSAYS AND ORATIONS.

Theory without practice is as fruitless in the study of English as in any other department of study. Practical work is indispensable to the successful teaching of English.

Besides numerous brief papers, illustrative of the subject matter of the text-books, set essays or orations are required of all students; for the freshman class, ten essays a year; ten for the sophomore; for the senior and junior classes, three orations each.

DECLAMATION.

The old practice of committing pieces to memory for "speaking" is cultivated as a means, both of training in the art of thinking on the feet, and of storing the mind with the diction of finished specimens of English style.

The sophomore class is heard weekly throughout the year in sections of ten, once for an hour and a half in rehearsal, afterwards in the study hall before the body of students.

The senior and junior classes also deliver their orations in public.

PHILOSOPHY AND POLITICAL ECONOMY.

The entire senior class pursues the study of intellectual science, twice a week, through the year; and political economy twice a week, during the last two terms. The instruction in this department is by lectures in combination with text-books.

Intellectual Science.—Psychology defined. Value in relation to moral culture, education, and Natural Sciences. The relations of the soul to matter. The arguments of the Materialist. Counter arguments. The Faculties of the Soul. The nature of Consciousness. Sense perception. Fancy. Imagination. Nature of Conceptions. Language. Judgment. Reasoning. Deduction. Induction, etc. *Porter's Intellectual Science.*

Political Economy.—Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades-union; co-operation; *money;* credit; functions of government; taxation; tariff; education, etc. *F. A. Walker's Advanced Political Economy, Lectures by Professor.*

A Post-graduate Course has also been established in English. The following courses have been given:

(1) *Shakespeare:*—Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Part I, Richard III, King John.

(2) *Dryden—Poetical Works* (Christie); *Essay on Dramatic Poesy* (Thomas Arnold); *Essay on Satire*, etc., (Yonge); Saintsbury's *Life of Dryden.*

Pope.—Poetical Works (Ward); *Satires* (Pattison); Stephen's *Life of Pope*, Gosse's *From Shakespeare to Pope and 18th Century Literature.*

(3) *English Literature of the Eighteenth Century:* Addison, Pope, Gray, Goldsmith, Burns, Cowper, Burke.

(4) *American Literature:* Longfellow, Lowell, Poe.

CHEMISTRY.

PROF. B. B. ROSS.

Instruction in this department embraces—

1. A course of lectures in general chemistry.
2. A course of lectures in industrial chemistry.
3. A course of lectures in agricultural chemistry.
4. Systematic laboratory work in connection with each

course of lectures, for the practice of chemical analysis and chemical research.

1. Course in general chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and most approved instruments necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cooke's Chemical Philosophy, Chemical Journals.

2. The lectures on industrial chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the reduction of ores, the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufacturing products, together with models and diagrams.

REFERENCE BOOKS.

Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Percy's Metallurgy, Sadtler's Industrial Organic Chemistry.

3. Course in agricultural chemistry: This consists of lectures on chemistry in its applications to agriculture (two per week), and includes a thorough discussion of the origin, composition and classification of soils, the composition and

growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist.

REFERENCE BOOKS.

Johnson's How Crops Grow and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

4. The course of systematic laboratory work: This course of practical work in the laboratory is carried on in connection with each course of lectures, and embraces the practical operation of chemical analysis and synthesis, being varied somewhat to suit the individual object of the student.

The laboratories, which are open from 9 A. M. to 5 P. M., during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation, in the qualitative and quantitative analysis of soils, fertilizers, feed stuffs, sugar products, minerals, mineral waters, technical products, etc., and in the method of prosecuting chemical researches. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles, and the common re-agents and apparatus used in qualitative and quantitative analysis. At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from the deposit.

In addition to the analytical work above described, it is designed to give during the session a short course in electo-plating. Practical instruction in the electro-deposition of nickel, silver, gold, etc., upon other metals will be given, and, in addition, the applications of electrolysis to chemical analysis will be studied both theoretically and practically.

BOOKS USED.

In qualitative analysis—Jones, Fresenius, Plattner.

In quantitative analysis—Fresenius, Sutton, Rose, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying.

In agricultural chemical analysis—Official methods of the Association of Agricultural Chemists.

Wiley's Principles and Practice of Agricultural Analysis.

CHEMICAL LABORATORY.

[For description of the building see page 16.]

The chemical apparatus recently purchased for the laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, four short-arm Becker Balances of latest pattern, Bunsen spectroscope, Zeiss microscope, and other instruments for delicate and accurate work.

HISTORY AND LATIN.

PROF. PETRIE.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Constant practice in map drawing is insisted on in order to give precision to the geograpical knowledge required. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library.

In the freshman class, the subjects studied are the United States, Alabama, and England. The first term (two hours per week) is devoted to the history and government of the United States, the second term (two hours per week) to Alabama, and the third term (three hours per week) to the history of England.

In the sophomore class (three hours per week until March) the subject studied is general history.

In the junior and senior classes opportunity for special historical work is given to those students of the general course who may elect it instead of laboratory work. The work in 1897-98 will be in American history, social, political and economic.

The work will be partly by lectures; but students will also investigate in the library under the direction of the professor topics connected with the lectures, and will report to the class the result of research. These reports will be made the basis of general discussion. A series of lectures will be given from time on current foreign events.

TEXT-BOOKS.

Freshman class.—Cooper, Estill & Lemmon's History of the United States, Thorpe & McCorvey's Civil Government in the United States and Alabama, Montgomery's English History.

Sophomore class.—Myers's General History.

Junior and Senior classes.—Hart's Formation of the Union, Woodrow Wilson's Division and Reunion.

LATIN.

The objects kept in view in this department are: an accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and in the syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put into Latin both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the artistic value of his writings is carefully discussed and frequent comparisons are made with modern authors.

For the benefit of students who do not study the Latin language a series of popular lectures will be given upon the great Latin writers.

TEXT-BOOKS.

Freshman Class.—Grammar, Exercises, Nepos, Sallust.

Sophomore Class.—Cicero, Selections from Livy, Allen & Greenough's Grammar, Exercises.

Junior Class.—Virgil, Horace, A. & G.'s Grammar, Exercises, Allen's History of Rome, Wilkins's Roman Antiquities.

Senior Class.—Selections from Latin Authors, Wilkins's Latin Literature, Ancient Classics for English Readers, Exercises.

MODERN LANGUAGES.

PROF. C. H. ROSS.

The following regular courses are given in French and German:

French—First Year: Three recitations a week. During this year the principal object is to acquire a thorough knowledge of the elements of grammar and a correct pronunciation, together with facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year, almost the same line of work is pursued as that begun in the previous year. More difficult and varied French is read, and careful instruction is given upon the laws of grammar, the construction of the language, and the history of the literature.

German—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

A post-graduate course in French has been offered, consisting of a study of the life and works of Molière.

TEXT-BOOKS.

FRENCH—*First Year:* Whitney's Brief French Grammar; Joynes's Contes de Fées, Jules Verne's Michel Strogoff.

Second Year: Hugo's Hernani, Dumas' Les Trois Mousquetaires; French Prose Composition.

Post-graduate Course: Le Médecin malgré lui, Le Tartuffe, Les Précieuses Ridicules, Les Femmes Savantes, La Malade Imaginaire; Wells's Modern French Literature.

GERMAN—*First Year:* Harris's German Lessons; Super's Elementary German Reader, Grimm's Kinder- und Haus-Maerchen.

Second Year: Scheffel's Der Trompeter von Saekkingen, Freytag's Doktor Luther, Hauff's Das Kalte Herz; German Prose Composition.



ELECTRICAL ENGINEERING.

PROF. MCKISSICK.

The students in this course will study English, French, or German, physics, mathematics, etc., as now prescribed for the course of civil engineering in the junior and senior years; and in addition thereto, will prosecute their studies in electricity and mechanics, as herein prescribed.

COURSE IN ELECTRICAL ENGINEERING.

JUNIOR YEAR.

Four hours a week for the entire session are devoted to the studies of the principles of electricity and magnetism. The student is made familiar with the theoretical principles by experiments, illustrations, recitations, and lectures.

LABORATORY WORK.—Four hours per week are given to work in the laboratory. This includes management of batteries, construction of instruments, electro-plating, electrical measurements, verification of the principles upon which the measurements of current, electromotive force and resistance are based, etc.

TEXT-BOOKS.

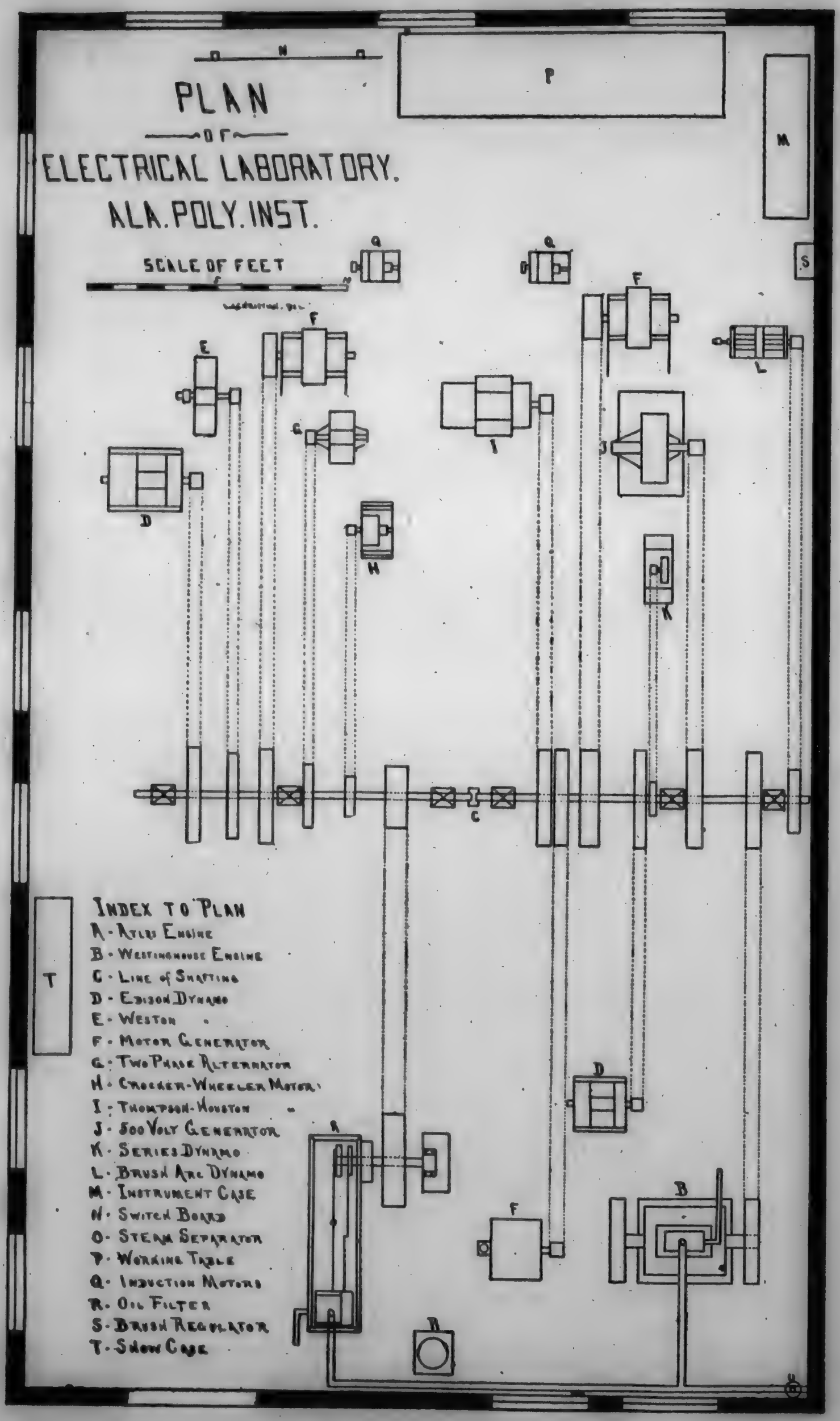
Ayrton's Practical Electricity, Desmond's Electricity for Engineers, Stewart and Gee's Practical Physics, Nichol's Laboratory Manual, Vol. I.

SENIOR YEAR.

In the senior year five hours per week are devoted to theoretical instruction in electricity and magnetism, supplemented by a course of lectures and practical demonstrations on the applications of electricity to lighting, electrical transmission of energy, electrical welding, etc.

Encouragement is offered to advanced students for conducting original investigations, and opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students in connection with their experimental work.

LABORATORY WORK.—Six hours per week are devoted to practical laboratory work, including construction of instruments, electrical measurements, electrolysis, and relation of electrical currents to heat and mechanical work, care and tests of dynamo, the adjustment and calibration of voltmeters and ammeters, electric lighting, management and care of accumulators, energy consumed in lamps, adjustment and care of arc lamps, proper wiring of buildings, the application of electricity to street railways, magnetic measurements, tests of transformers and motors.


PLAN
OF
ELECTRICAL LABORATORY.
ALA. POLY. INST.
SCALE OF FEET
INDEX TO PLAN
A - ATLES ENGINE
B - WESTINGHOUSE ENGINE
C - LINE of SHAFTING
D - EDISON DYNAMO
E - WESTON
F - MOTOR GENERATOR
G - TWO PHASE ALTERNATOR
H - CROCKER-WHEELER MOTOR
I - THOMPSON-HOUSTON
J - 500 VOLT GENERATOR
K - SERIES DYNAMO
L - BRUSH ARC DYNAMO
M - INSTRUMENT CASE
N - SWITCH BOARD
O - STEAM SEPARATOR
P - WORKING TABLE
Q - INDUCTION MOTORS
R - OIL FILTER
S - BRUSH REGULATOR
T - SHOW CASE

DRAWING AND CONSTRUCTION.—Two hours per week in the senior year are devoted to the design and construction of electrical machinery. The student is required to make original designs of dynamos, motors, transformers, etc.

TEXT-BOOKS.

Thompson's Dynamo Electric Machinery, Fleming's Alternate Current Transformer, Nichol's Laboratory Manual, Vol. II.

REFERENCE BOOKS.

Treatise on Electricity and Magnetism, Vols. I and II, by Gordon; Electricity and Magnetism, by Clerk Maxwell; Emtage's Introduction to the Mathematical Theory of Electricity and Magnetism; Kempe's Electrical Testing; Dredge's Electric Illumination, Vols. I and II; Dynamo Electric Machinery, by Carl Hering; the Electro Motor and its Applications, by Wetzler and Martin; Electric Transmission, by Kapp; Electric Lighting, by Atkinson; Electric Light Installations, by Salomons; Alternating Currents of Electricity, by Blakesley; London Electrician; Proceedings of American Institute of Electrical Engineers; Thompson's Electro-Magnet.

EQUIPMENT.

The electrical laboratory has a complete line of batteries, call-bells, annunciators, telegraph sounders, relays, keys, magnets, galvanometers, resistance boxes, electro-plating apparatus, and all apparatus for first year students in electrical engineering. The equipment comprises many fine instruments of precision: Sir Wm. Thomson's standard 100 ampere balance (either for direct or alternating currents); Sir Wm. Thomson's graded current galvanometer, reading 600 amperes; also, his graded potential galvanometer, reading 600 volts; Weston alternating current voltmeter, Weston direct reading watt-meter, Queen's "Acme" testing set, Kelvin electrostatic voltmeter, Cardew voltmeter (for direct or alternating currents), reading to 150 volts; Weston's standard ammeter and voltmeter, box of resistance coils; Queen's magnetic vane voltmeter, and ammeter, standard $\frac{1}{3}$ micro-farad condenser and Sabine key; Thompson watt-meter ballistic reflecting galvanometer, mirror galvanometer, Fein ammeter and voltmeter, Ayrton & Perry ammeter, Edison ammeters, Kohl's solenoid ammeter, Wood ammeter, Deprez ammeter, Hartman & Braun voltmeter, D'Arsonval galvanometer, Hughe's induction balance, tasimeter, microphone, telephones, electrolytic apparatus and several mirror and other galvanometers for first year students.

In the dynamo room the following are installed: One Weston 150 volt, 20 ampere dynamo, with rheostat; one Brush 6 arc light dynamo,

with regulator and six lamps; one Thomson-Houston 9 arc light dynamo with lamps; one Edison compound wound 12 kilo-watt generator: a Thomson-Houston 110 volt, 75 ampere generator; two street car motors used as either direct or alternating current generators or motors; two polyphase induction motors; one General Electric 5 horse power induction motor; General Electric 20 horse-power motor; Edison 3½ kilo-watt generator; a Crocker-Wheeler one horse-power motor and rheostat, and one bi-phase alternator, and 500 volt generator, made by special students, furnish current to laboratory, and light up the different buildings.

The dynamos occupy a separate brick building, 50 x 32 feet, and are operated by a 35 horse-power Westinghouse vertical engine, and a 25 horse-power Atlas engine.

This department, being provided with Sir Wm. Thomson's standard electrical instruments for exact measurements, will calibrate, free of expense, any ammeter or voltmeter that may be sent to the College.

An electric motor made by students, supplied with current from a generator at a distance of 3,000 feet, operates a gin, gin press, ensilage cutter and feed cutter at the experiment station farm. This motor not only subserves a useful purpose in the operation of these machines, but is an excellent illustration of the electric transmission of power.

MECHANICAL ENGINEERING AND MECHANIC ARTS.

PROF. WILMORE.

B. H. CRENSHAW,
R. J. TRAMMELL, } ASSISTANTS.

MECHANIC ARTS.

The course in manual training covers three years, as follows: first year, wood-working—carpentry and turning; second year, pattern-making and foundry and forge work—molding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the three lower classes. For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

The power for running the apparatus in this department is derived from a twenty-five horse power Harris-Corliss automatic engine, which is supplied with steam by a thirty horse-power steel horizontal tubular boiler. A steam pump and a heater for the feed water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected.

The equipment for the wood-working shop comprises the following: 30 wood-working benches, each with complete set of carpenter's tools; 24 turning-lathes, 10-inch swing, each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 buzz planer; 1 large pattern-maker's lathe, 16-inch swing; 1 36-inch grindstone. In addition to these, the tool room is supplied with a variety of extra hand-tools for special work.

The equipment for the foundry consists of molding benches for 18 students, each supplied with a complete set of molder's tools; a 23-inch Colliau cupola, with all modern improvements, capable of melting 2,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small moulding flasks, a foundry crane, special tools, etc.

The forge shop equipment consists of 16 hand forges of new pattern, each with a set of smith's tools, anvil, etc. The blast for all the forges is supplied by a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a No. 15 Sturtevant exhaust blower draws the smoke from the fires into the smoke-flues and forces it out through the chimney.

The machine department occupies a brick building, 30 x 50 feet, and is equipped with six engine-lathes (screw-cutting), 14-inch swing, 6-foot bed; 2 engine-lathes, 16-inch swing (one with taper attachment); 1 engine-lathe, 18-inch swing, with compound rest and taper attachment; 1 screw-cutting lathe, 12-inch swing; 1 speed lathe, 10-inch swing; 1 20-inch drill press (power feed); 1 10-inch sensitive drill; 1 15-inch shaper; 1 22-inch x 22-inch x 5 feet planer; 1 universal milling machine; 1 corundum tool grinder (14-inch wheel); 1 bench grinder; 1 post drill press, 14-inch; 1 universal cutter and reamer grinder; 1 Brown & Sharpe universal grinding machine; 1 power hack saw. A part of this room is set apart for vise-work, chipping and filing; and benches for 12 students are provided, each with vise and set of files, chisels, hammers, etc. In the tool-room is to be found a good supply of machinists' tools for general shop use, such as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, with machine for grinding twist drills.

The nature of the work in each department is as follows:

FIRST YEAR.

I. A course of carpentry or hand work covering the first two terms. The lessons include instruction in the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, different kinds of joints, timber-splices, cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work, examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the third term. The lessons comprise, first, nature and use of lathe and tools, plain straight turning caliper work to different diameters and lengths, simple and compound curves, screw plate and chuck work, hollow and spherical turning.

SECOND YEAR.

I. A course in forge work in iron and steel, occupying the first term. The lessons are arranged so that the students, in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

II. A course in pattern-making covering the second term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general molding.

III. A course in molding and casting in iron and brass occupying the third term. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks; core work is also given, and some three part flask and some dry sand work is introduced.

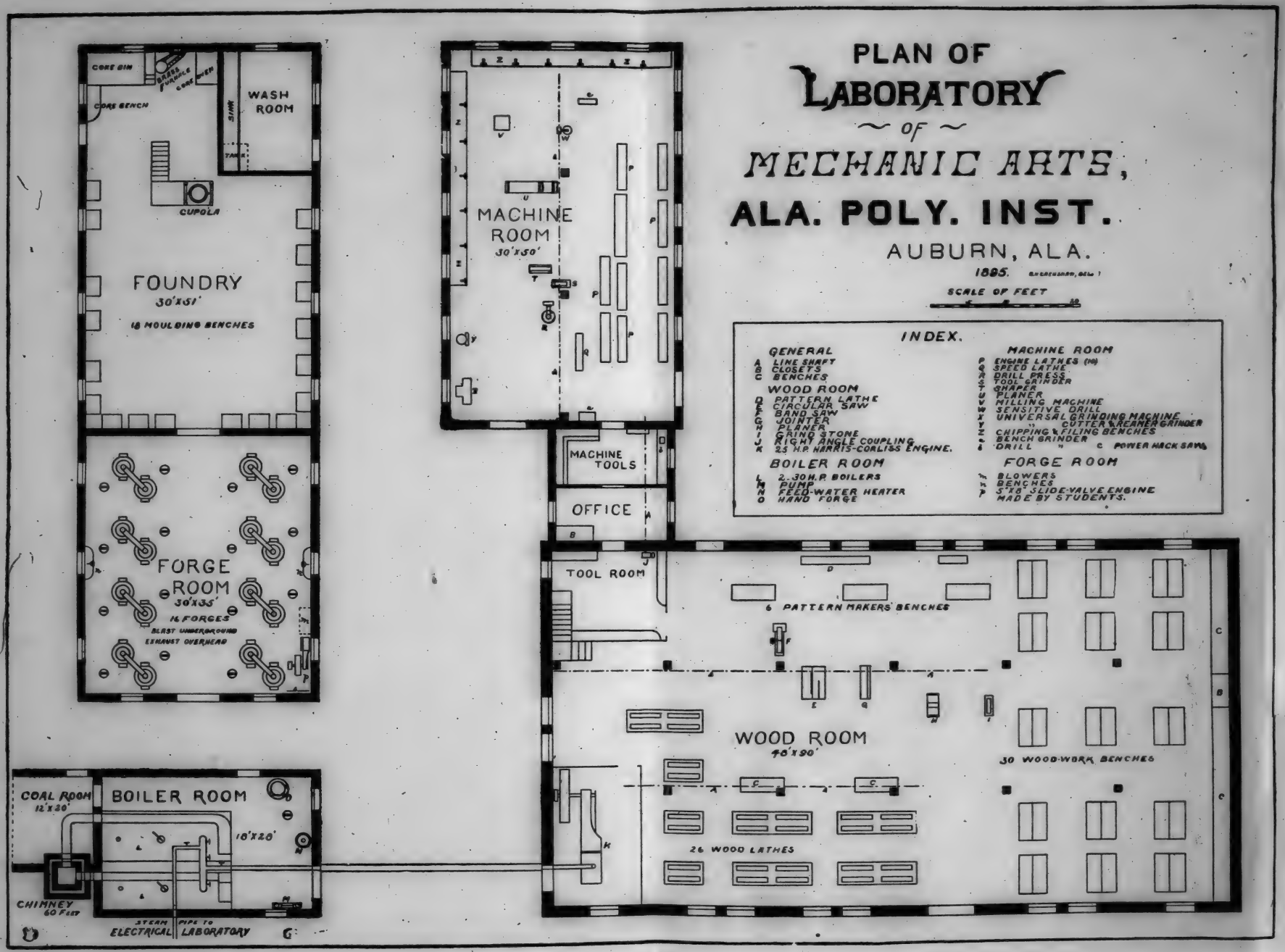
The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola, each student in turn taking charge of a melting.

In connection with this second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

THIRD YEAR.

I. A course of chipping and filing, covering the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved surfaces, key-seating, etc.; filing and finishing to line


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PLAN OF
LABORATORY
OF
MECHANIC ARTS,
ALA. POLY. INST.
AUBURN, ALA.
1885.
SCALE OF FEET
INDEX.
GENERAL
A LINE SHAFT
B CLOSETS
C BENCHES
WOOD ROOM
D PATTERN LATHE
E CIRCULAR SAW
F BAND SAW
G JOINTER
H PLANER
I GRIND STONE
J RIGHT ANGLE COUPLING
K 25 H.P. HARRIS-CORLISS ENGINE.
BOILER ROOM
L 2-30 H.P. BOILERS
M PUMP
N FEED-WATER HEATER
O HAND FORGE
MACHINE ROOM
P ENGINE LATHES (19)
Q SPEED LATHE
R DRILL PRESS
S TOOL GRINDER
T SHAPER
U PLANER
V MILLING MACHINE
W SENSITIVE DRILL
X UNIVERSAL GRINDING MACHINE
Y " CUTTER & REAMER GRINDER
Z CHIPPING & FILING BENCHES
& BENCH GRINDER
é DRILL " ç POWER HACK SAWS
FORGE ROOM
½ BLOWERS
¼ BENCHES
¾ 3 1/2" SLIDE-VALVE ENGINE
P MADE BY STUDENTS.
CORE BIN
CORE BENCH
WASH ROOM
CUPOLA
FOUNDRY
30'X51'
18 MOULDING BENCHES
FORGE ROOM
30'X35'
16 FORGES
BLAST UNDERGROUND
EXHAUST OVERHEAD
MACHINE ROOM
30'X50'
MACHINE TOOLS
OFFICE
TOOL ROOM
6 PATTERN MAKERS BENCHES
WOOD ROOM
40'X90'
30 WOOD-WORK BENCHES
26 WOOD LATHES
COAL ROOM
12'X30'
BOILER ROOM
16'X20'
CHIMNEY
60 FEET
STEAM PIPE TO
ELECTRICAL LABORATORY

(straight and curved), surface filing and finishing, fitting, slotting, dovetail work, sawing, pin and screw filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron, steel and brass; turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press,—reaming, boring, screw-cutting in lathe and with taps and dies, planing, slotting, etc., with planer and shaper, milling various forms with the milling machine, including exercises in making taps, reamers, etc., fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals: such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

All of the work is done from blue prints made by the class in drawing. In the construction work, the student is given a blue print and the material for a certain part. He is then encouraged to study the work and plan the best method of doing it.

MECHANICAL ENGINEERING.

JUNIOR YEAR.

Elementary Mechanics.—Three hours a week for the first term are devoted to this subject. The fundamental laws underlying all mechanical science and the mechanics of liquids, gases and vapors are studied.

Principles of Mechanism.—Three recitations per week during the second and third terms are devoted to this subject.

Under this head machines are analyzed and their elementary combinations of mechanism studied. The communication of motion by gear wheels, belts, cams, screws and link-work, the different ways of obtaining definite velocity ratios and definite changes of velocity, parallel motions and quick return motions as well as the designing of trains of mechanism for various purposes, together with the theoretical forms of teeth for gear wheels to transmit the motion through these trains, are investigated under this subject.

Mechanical Drawing.—During the first term the students make drawings to exact scale, of some of the simpler machines. The student takes his own measurements and makes his own sketches from which to make the finished drawing.

An elementary course of machine design is started at the beginning of the second term and continued till the end of the year. Some comparatively simple machine is selected and studied in all its details. Careful attention is given to the strength of the parts and their mechanical arrangement with reference to facility of manufacture. An actual machine or the working drawings of a machine are obtained, the dimensions compared with those obtained by applying the theoretical formulas, and the causes of variation between the two studied.

Laboratory Work.—The laboratory work will consist of hand work in iron and machine work in iron, as given in the course in mechanic arts in the third year.

TEXT-BOOKS.

Wood's Elementary Mechanics; Stahl and Wood's Elementary Mechanism.

SENIOR YEAR.

Steam Engine.—The first term five hours per week will be given to the study of the theory and efficiency of the steam engine, with discussions of the effects of condensation in cylinder, action of fly-wheels, effect of jacketing, etc. Simple and compound engines, various valves and cut-off motions, and the principal types of modern engines are studied. Special attention is given to the steam engine indicator.

Graphical Statics of Mechanism.—Five weeks of the second term, five hours per week, will be given to the study of this subject. The advantage of graphical over analytical methods is generally recognized, and new applications of the former are constantly being made. By its use, the forces acting in every part of a machine may be determined, both in direction and intensity, without the use of a mathematical formula.

Steam Boilers.—The remainder of the second term is given to this subject. The different forms of boilers, the different materials used, and the most approved methods of construction; the various styles of boiler fittings; cause and prevention of foaming, incrustation and corrosion; the best manner of setting and operating, are discussed.

Machine Design.—During the last term, the subject of machine design will be studied in connection with the strength of materials, the latter being studied mainly from actual experiments made on the testing machine.

Laboratory Work.—The students are not only taught how to calibrate and use the different instruments, but they are brought in contact with engineering appliances under practical working conditions.

Thoroughness of work is sought rather than the performance of a large number of experiments.

The following course has been arranged:

Calibration of steam gauge; calibration of indicator spring; calibration of thermometer; calibration of scales and balances; calorimeter tests with barrel, separating and throttling calorimeters; boiler test with determination of the equality of steam and analysis of flue gas; efficiency test of engine with brake and indicator power measurement; test of hot air pumping engine; efficiency and duty of a steam pump; tensional, compressional and transverse tests of cast iron, wrought iron, steel and wood, in which are observed the limit of elasticity, the ultimate breaking strength and the modulus of elasticity.

This class usually makes a test of some electric plant or mill some time in the last term.

The apparatus for carrying on this work consists of a 25 horse-power Harris-Corliss engine, a 35 horse-power Westinghouse engine, a 25 horse-power Atlas engine, two 9 horse-power engines constructed by students in the shops, a small engine and boiler especially for making efficiency tests, a duplex Deane steam pump, an Ericsson hot air engine, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, thermometer, pyrometers, scales, a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester for correcting the standard gauge, a 35,000-pound testing machine, and Henning micrometer extensometer, a Carpenter calorimeter with auxiliary apparatus for determining the heating value of different fuels.

TEXT-BOOKS.

Holmes's Steam Engine, Herrman-Smith's Graphical Statics of Mechanism; Unwin's Machine Design; Wilson's Steam Boilers.

REFERENCE BOOKS.

The library contains a number of standard works on the various subjects studied, and the students are referred to them constantly for more extended treatment of many points that come up in class.

POST-GRADUATE COURSE.

The following course has been arranged and represents the amount of work required. Hydraulics may be substituted for thermodynamics if the members of the class are unanimous in wishing the

change. Other substitutions may be made at the option of the professor, provided they represent an equivalent amount of work, and are in the general line of the course selected.

Dynamometers.—This includes dynamometers and the measurement of power. Absorption and transmission dynamometers are studied, with their application and use in testing steam engines.

Valve Gears.—The different forms of valve gears of steam engines are studied, and problems in designing gears are worked out.

Thermodynamics of the Steam Engine.—This subject is studied theoretically and practically, and attempts a complete analysis of the action of steam in an engine.

Laboratory Work.—As much advanced laboratory work will be given as can be arranged with the appliances at hand.

TEXT-BOOKS.

Flather's Dynamometers and Measurement of Power, Spaingler's Valve Gears, Peabody's Thermodynamics of the Steam Engine.

AGRICULTURE.

PROF. DUGGAR.

Instruction in agriculture is given by means of lectures, text-books, bulletins of the agricultural experiment stations, and practical work in field, barn, and dairy.

The study of agriculture begins with the freshman class in the third term, and extends through three terms of the sophomore year and two terms of the junior year. The time devoted to this study in the lecture room is two hours per week with each class.

The subjects studied by the freshman class are the breeds of horses, cattle, sheep, and hogs,—their characteristics, uses, management and adaptability to the South. Practical work in judging live-stock is included in the course.

The first term of the sophomore year is devoted to dairying and to a study of the principles of live-stock breeding. Dairying will be taught by practical work in the dairy,—butter making, determination of fat in milk by the Babcock method, etc.,—as well as by instruction in the lecture room.

In the second term of the sophomore year the following

subjects are studied: soils—chemical and physical properties, defects, and means of improvement; the control of water, including means of conserving moisture in times of drought, terracing, underdrainage, and open and hillside ditches; objects and methods of cultivation; agricultural implements; rotation of crops; and improvement of plants by crossing, selection, and culture.

The third term of the sophomore year is devoted to the staple crops produced in Alabama, to forage plants adapted to the South, and to plants valuable for the renovation of soils. The more important crops are treated with reference to varieties, soil and fertilizer requirements, methods of planting and cultivating, and uses.

In the junior year the subjects of feeding animals and of farm management are studied. Among the topics included under the latter heading are different systems of farming and stock growing, farm equipment and buildings, silos and silage, care of farm manures, composting, choice and methods of applying commercial fertilizers for different crops and soils, and economical methods of improving exhausted soils.

In every class the student is encouraged to independent thought on agricultural problems rather than to depend on "rules of thumb," so that he may be prepared to adapt his practice in after years to changed conditions of soil, climate, capital, market, etc. The successful farmer must be a thinker rather than a blind follower of inflexible rules.

The effort is made to keep before the student the difference between the widely applicable principles on which every rational system of farming rests and details that vary with changing conditions. The conditions of soil, climate, etc., prevailing in different parts of Alabama are kept constantly in view.

As far as limited time allows, attention is directed to agricultural literature now accumulating so rapidly in this and in foreign countries, to the end that in future years the student may know where and how to seek the information that he may need.

REFERENCE BOOKS.

Horses, Cattle, Sheep, and Swine, by Curtis; American Dairying, by Gurler; Dairyman's Manual, by Stewart; Soils and Crops of the

Farm, by Morrow & Hunt; Muir's Agriculture; Corn Culture, by Plumb; The Soil, by King; Manures and the Principles of Manuring, by Aikman; Drainage for Profit and Health, by Waring; Agriculture in some of its Relations with Chemistry, by Storer; Manual of Cattle Feeding, by Armsby; Stock Breeding, by Miles; Hand-book of Experiment Station Work; and selected publications of the various divisions of the U. S. Department of Agriculture, and of the agricultural experiment stations.

Applicants for post-graduate work in agriculture will be assigned special research work and aided in the line of investigation deemed best for each individual student.

BIOLOGY AND HORTICULTURE.

PROF. EARLE.

The subject of biology is required of the senior class in the courses of chemistry and agriculture, and of pharmacy. It occupies five hours a week for the three terms of the senior year. The work in this department will be largely confined to the study of the lower forms of plant life and to vegetable physiology, or the study of plants as as living beings. Under the first head special attention will be given to the bacteria and other disease producing organisms of man and the higher animals; and to the parasitic fungi that cause diseases of plants. Under vegetable physiology those problems that explain the foundation for correct agriculture practices will be made most prominent. This will include the germination of seeds, the food and nutrition of plants, the circulation of the sap, the processes of reproduction, plant variability, etc.

The instruction will be by text-book, supplemented by lectures and by practical laboratory work.

The students will be required to make careful microscopic drawings of objects studied. They will also collect material in the fields and determine it so far as their instruction will admit.

The equipment for instruction in this department comprises, besides a sufficient lecture room, a students' laboratory and two small glass rooms for cultural and bacteriological work. These are supplied with water, gas and all necessary appliances for thorough primary

and advanced work, including compound and dissecting microscopes for each student, microtomes, paraffine baths, incubators, steam and dry sterilizers, instantaneous water heaters, Pasteur filter, chemical and common balances, set of Brendel's models of parisitic and other fungi, besides a large and well selected stock of glassware staining fluids, chemical re-agents, culture media, etc.

In the private office of the department, which is fitted up as a special laboratory for the use of the professor in charge, is located a good reference library and the scientific collections of the department. At present these consist of about 10,000 named specimens of fungi, and other material is being rapidly accumulated, not only of fungi, but of the other groups of cryptogams as well. These books and collections are accessible to the students, and constitute, with the other resources mentioned, a superior equipment for advanced biological instruction.

HORTICULTURE.

At present special horticultural instruction is confined to the spring term of the junior year in the course of chemistry and agriculture, and to some practical work and "field lectures" to the students of the same course during the sophomore year. Instruction is given by lectures and by courses of reading, using the green house and orchards and gardens of the experiment station to give practical illustrations of the subjects taugbt.

Attention is called to the various fruits and vegetables that can be successfully cultivated in Alabama, and methods of propagation, cultivation and marketing are discussed. Particular attention is called to the diseases and insect enemies to which each of these crops are liable, and careful directions are given as to the best known means of combatting them. The construction and management of green houses, hot beds and cold frames receive special attention, while such topics as floriculture, landscape gardening and forestry are discussed in a general way only.

Special work will be arranged for any special students desiring to take a more extended course in horticulture.

MILITARY SCIENCE AND TACTICS.

LIEUT. M. O. HOLLIS, U. S. A., COMMANDANT.

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company and of the battalion in close and extended order, also in guard mountings, inspections, dress parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the College is provided with modern cadet rifles and accoutrements and two pieces of field artillery. Ammunition for practice firing is used under the direction of an experienced officer. The exercises in target practice and artillery drill begin the first day of the third term.

The following uniform of standard cadet gray cloth has been prescribed for dress: Coat and pants as worn at West Point, with sack coat for fatigue, dark blue cadet cap. A neat and serviceable uniform can be obtained here at $14 to $15. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct, and scholarship. The commissioned officers will be selected either from the senior or junior classes, and promotion will depend on merit and not wholly on seniority.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the President and Commandant. The resignation of his office by a minor will usually not be considered without first placing all the circumstances of the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Examinations will be conducted by a Board of Officers, to be composed of the Commandant of Cadets and two commissioned officers, to be designated by him. The proceedings of the Board are subject to revision and approval by the President of the College.

Each company is officered by one captain, two first lieutenants, one second lieutenant, and with a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The junior class recites once a week in the United States Infantry Tactics.

The senior class recites once a week in "Notes on Military Science."

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. Army, and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

PHYSIOLOGY AND VETERINARY SCIENCE.

PROF. CARY.

PHYSIOLOGY.

The sophomore class during the entire college year studies human physiology.

It is the aim of the department to familiarize the student with the gross anatomy and the functions of the various parts of the human body; moreover, due attention is given to the laws of health or conditions most favorable to a healthy action of the organs of the human body.

Instruction is given by lectures, which are illustrated by charts, drawings, models of the organs of the body and by a human skeleton.

The department is now supplied with rooms where the students can dissect some of the smaller animals and thus see the organs, tissues and regions as exhibited in a few of the lower animals.

VETERINARY SCIENCE AND ART.

During the entire junior and senior years the students in the agricultural and chemical course of study devote to this work two hours per week in the class room and three to five hours per week in clinical practice.

The senior class in pharmacy devotes four hours per week, during the first term, to the study of bacteriology in the class room and laboratory; and three hours per week in the study of therapeutics during the second and third terms.

The lectures are arranged with special reference to the students who are interested in horses or other domestic animals; also to those students who contemplate studying human or veterinary medicine. While it is not the aim to give a complete course in veterinary medicine, we attempt to present the general principles of comparative medicine with such special applications as are adapted to the conditions and wants of the students.



Special attention is given to the exterior anatomy of the horse, while comparative anatomy is presented mainly in connection with the study of the diseases of the different apparatus of the horse or other domestic animals.

Lameness in the horse, minor surgery, the actions and uses of the most common medicines, the principles and practice of comparative medicine, the methods of meat inspection, and the ways of protecting the health of man and domestic animals, are considered in as plain and practical a manner as the time allotted to each subject will permit. Post mortem examinations and the dissection of domestic animals are used as object lessons in the study of general pathology and anatomy.

To the post-graduate student this department furnishes work in histology, bacteriology, pathology, and meat and milk inspection.

The department of physiology and veterinary science is now located in a new building which consists of a two-story portion, containing four laboratory rooms on the second floor and a lecture room, museum and office on the lower floor; and a one-story part, which contains an operating room.

The building is supplied with water and gas, and the laboratory is now equipped for work. The museum contains the skeletons of the horse, the ox, the sheep, and the hog, and a human skeleton. It also contains anatomical models of the various parts and organs of the human body and models of many parts of the horse, the ox and the other domestic animals. It also contains a collection of pathological and anatomical specimens, and one of animal parasites.

A new veterinary hospital building has just been completed; it contains five large box stalls, four open single stalls, an office and a feed room, on the lower floor; the upper floor is used as a storage room for hay, fodder, etc. The hospital is supplied with fresh water.

The cases for clinical work have been numerous. During 1896 there were five hundred and sixty cases handled by the department.

PHARMACY AND PHARMACOGNOSY.

PROF. MILLER.

JUNIOR YEAR.

Pharmacy.—Class work, *three hours* a week. The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in phar-

macy. Apparatus used in pharmaceutical processes. Discussion of all classes of pharmaceutical preparations.

Laboratory, *nine hours* a week. Preparation of official and non-official galenicals.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. All official vegetable drugs studied with aid of simple and compound microscope.

SENIOR YEAR.

Pharmacy.—Class work, *four hours* a week. Official and non-official pharmaceutical chemicals, inorganic and organic, including the more important newer remedies. The prescription. Incompatibilities. Doses.

Laboratory, *nine hours* a week. Preparation of official and non-official pharmaceutical chemicals, inorganic and organic. Pharmaceutical testing by pharmacopœial methods. Drug assaying, special attention given to compounding of prescriptions.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. Study of important non-official vegetable drugs; of drugs of animal origin; of adulterants and worthless drugs. Practical exercises in identification of pharmaceutical preparations and chemicals.

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than three hundred drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

ZOOLOGY.

PROF. BAKER.

This department is prepared to offer instruction in the more important subjects relating to animal life. For the present especial attention will be paid to entomology, discussing useful and injurious insects in their relations to agriculture.

Instruction is offered under four heads:

(1) General Morphology, (2) Embryology, (3) Taxonomy, and (4) Interrelations of Plants and Animals.

The entire course for a post-graduate degree will cover the work of four full terms. At present, in the course of agriculture, a portion, amounting to one term's work, is required for a degree.

(1) *General Morphology.* Under this head is included a study of the anatomy and physiology of types of each of the great groups of animals. The guides in this work, which is all done at the laboratory table, will be Huxley's Crayfish, Huxley and Martin's Practical Biology, and Parker's Zootomy.

(2) *Embryology.* For work in embryology the department is well equipped, possessing incubators, microtome, the best microscopes, and all necessary re-agents. Students taking embryology will be engaged largely with the development of the chick, using Foster and Balfour's Elements.

(3) *Taxonomy.* The principles of taxonomy will be taught entirely by the laboratory method. Some work will be done in each of the greater groups, dissecting and classifying many of the common animal forms. In this subject there will be used the College collection of periodicals and special works, together with the private library of special papers and monographs of the professor. The private zoological collections of the professor, now in the entomological laboratory, containing a large number of specimens, will be at the service of students.

(4) *Interrelations of Plants and Animals.* It is through the close relations existing between the plant and animal worlds, that the latter has so important an influence on agricultural and other interests. This subject will be taught almost entirely by field work, the facts being brought out by the students themselves through observation and experiment. A consideration of the subject in general will be followed by a study of the various insects injurious to field and garden crops. Beneficial species will also be considered, especial attention being given to the subject of the influence of insects in the pollination and cross fertilization of plants. The field investigations will be supplemented by lectures.

The department has a most exceptional outfit for thorough general work. It has, in connection with the department of horticulture and mycology, a lecture room and students' laboratory, the latter being a large, well-lighted room, provided with water, gas, slate-topped tables, and fully equipped with microscopes, reagents, and all other apparatus necessary in a study of general zoology. It has also a well equipped entomological laboratory and a costly experimental plant house in connection therewith.

POST-GRADUATE DEGREES.

The post-graduate degrees are—MASTER of SCIENCE, MINING ENGINEER, CIVIL ENGINEER, ELECTRICAL AND MECHANICAL ENGINEER, AND PHARMACEUTICAL CHEMIST.

A post-graduate degree may be obtained by a graduate of this College, or of any other institution of equal grade, by one year's residence at the College, spent in the successful prosecution of a course of study approved by the Faculty.

Candidates must also present to the Faculty a satisfactory thesis, showing independent investigation upon some subject pertaining to their course, and must pass an examination at the close of each term on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the Faculty.

The subject of the thesis must be submitted to the Faculty for approval prior to January 1st, and be given to the professor by May 1st.

Applicants for post-graduate degrees are, by order of the Trustees, permitted to matriculate without payment of fees.

They are subject to the general regulations as other students, but are exempt from all military duty.

Resident graduates that are not candidates for a degree, are permitted to matriculate and prosecute the studies in any department of the College, without payment of regular fees.

The following courses are prescribed for the degrees named:

Mining Engineer.—For course of study for this degree, see page 40.

Civil Engineer.—Civil Engineering, Mathematics, Analytical Mechanics.

Electrical and Mechanical Engineer.—Electrical Engineering, Mechanical Engineering.

Pharmaceutical Chemist.—Pharmacy and Chemistry.

Master of Science.—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of Distinction are awarded in public on commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five

in the junior class, and six in the senior class, provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

PHOTOGRAPHY.

During the session there will be given by Professor Mell a course of twelve lectures on photography. This course will be elective, and the instruction will be open to any student that may desire to learn how to make pictures. It will be necessary for each student to provide himself with an outfit that will cost from $11.50 to $16.00.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

From the records a monthly circular, or statement, is sent to the parent or guardian.

EXAMINATIONS.

Written monthly examinations on the studies of the month are held by each professor.

At the end of each term written examinations, or written and oral, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations, can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except in extreme cases.

LIBRARY.

The library occupies an elegant, well-lighted room in the main building, and also two smaller adjacent rooms. It contains over 9,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room, and is thus made an important educational feature.

MUSEUM.

The museum occupies a large room in the third story. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character.

DISCIPLINE.

The government of the College is administered by the President and Faculty, in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study and punctuality in attendance on recitations and all other duties, are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using, or causing to be brought into the College limits, intoxicating liquors.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

Privates of the senior class who are candidates for graduation may be excused by the President from all military drills, and also students over twenty-one years of age at the time of entering College that are permitted to devote their time to one special study, as chemistry, agriculture, etc.

RELIGIOUS SERVICE.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This Association is regularly organized, and through its weekly meetings exerts a wholesome Christian influence among the students of the College.

Students are advised to unite with the Association when they enter College.

The following are the officers:

W. J. BEESON, President.
S. T. SLATON, Vice-President.
W. H. MCBRYDE, Corresponding Secretary.
J. W. KING, Recording Secretary.
JOHN PURIFOY, Treasurer.

LOCATION.

The College is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.



"CORPS OF CADETS 96"

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide water. By statute of the State, the sale of spirituous liquors and keeping saloons of any kind are forbidden.

BOARDING.

The College has no barracks or dormitories, and the students board with families in the town of Auburn and thus enjoy all the protecting and beneficial influence of the family circle.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after "call to quarters," or are guilty of any violation of order. The report of the inspector is made to the Commandant on alternate days of the week.

Students, after selecting their boarding-houses, are not permitted to make changes without obtaining permission from the President, and this permission is given only at the close of a term, except for special reasons.

By special arrangement with the College authorities, Mrs. M. L. Mitchell and Mrs. A DeBardeleben will accommodate students with board, lodging, fuel, etc., for $9.50 per month.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Incidental fee, per half session	$ 2 50
Library fee, per half session	1 00
Surgeon's fee, per half session	2 50
	$ 6 00

These fees are payable, $6.00 on matriculation and $6.00 on February 1st. By order of the Trustees no fees can be remitted.

For students entering after January 1st, the fees for a half session only are required.

For a non-resident of the State there is a charge for tuition of $20.00 per session, payable $10.00 on matriculation and $10.00 on February 1st, in addition to the semi-annual fee of $6.00 payable by all students.

Board, per month, with fuel and lights.....$12 to 15 00

EXPENSES FOR COLLEGE YEAR.

Fees	$ 12 00 to	$12 00
Board, lodging, fuel and lights	108 00 to	135 00
Washing	9 00 to	9 00
Books, etc., say	8 00 to	15 00
Total	$137 00	$171 00

For a non-resident student there should be added to the amounts given above $20.00 for tuition.

UNIFORM.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made, by a contractor, of excellent cloth manufactured at the Charlottesville mill. This suit, including cap, costs at present $14.50. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to college property for which he may be liable.

At the close of the session the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

Each student on entering College should deposit with the Treasurer not less than $50.00, to pay the expenses of fees, one month's board, uniform, books, etc.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons or wards, whether for regular charges of college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited, checks are drawn on the Treasurer of the College by the cadet to pay his necessary expenses. These checks are paid only when officially approved. The approval is given only for necessary expenses, as stated in the catalogue, unless specially requested in writing by the parent.

The College cannot be held responsible for the expenses of a student, unless the funds are deposited with the Treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty an essay or oration and read and deliver the same at commencement, if required by the Faculty.

It must be given to the Professor of English by the first of May.

LITERARY SOCIETIES.

There are two literary societies connected with the College—the Wirt and the Websterian. Each has a hall in the main building.

These societies hold celebrations on the evenings of Thanksgiving Day and 22nd of February. They elect annually, with the approval of the Faculty, an orator to represent them at the close of the year.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in the presence of the Faculty and students.

The *first and second terms* the students of the junior and sophomore classes are exercised in original orations and declamation.

The *second and third terms* the members of the senior class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society, in Langdon Hall, on ALUMNI DAY, Tuesday of commencement week. The following are the officers of the society:

CHAS. C. THACH, '77, President.
C. W. ASHCRAFT, '88, Vice-President.
W. L. FLEMING, '96, Secretary.
B. H. CRENSHAW, '89, Treasurer.
W. W. PEARSON, '82, Orator for 1897.

SURGEON.

The Surgeon is required to be present at the College daily, to visit at their quarters the cadets that are reported

sick, and to give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering college.

ACADEMIC YEAR.

The academic year for 1897–98 commences on Wednesday, 15th September, 1897 (*second Wednesday after the first Monday*), and ends on Wednesday, 15th June, 1898 (*second Wednesday after the first Monday*), which is commencement day.

It is divided into three terms. The first term extends from the opening of the session to the 23rd of December; the second term begins January 3rd, and ends March 19th; the third term continues to the close of the session.

RESOLUTION OF THE TRUSTEES.

The following resolution was adopted by the Trustees:

That in view of increased facilities for instruction in agriculture and the technical departments of education now possessed by this College, especially in the mechanic arts, made possible by the recent donation from the State, the Faculty are authorized, in addition to the legal name of this College, to print on the catalogue the words ALABAMA POLYTECHNIC INSTITUTE, as significant of the expanded system of practical instruction in industrial science in the course of education now provided for.

DONATIONS TO LIBRARY.

Congressional and Public Documents.—Senate and House Executive and Miscellaneous Documents, 151 vols.

Hon. G. P. Harrison.—Compendium of 11th Census, 2 vols.; Report of Commissioner of Education, 1894-5, 2 vols.

Mrs. M. C. Jordan.—Pamphlets on Vivisection.

Dr. P. H. Mell.—Botanical Text-book, Vol. I.

R. S Jackson.—Life of Swedenborg; Apocalypse Revealed, by Swedenborg; Christian Religion, by Swedenborg; Heaven and Hell, by Swedenborg.

Thomas Egleston.—Life of Maj. Gen. John Patterson.

Gen. James H. Lane.—Battle of Chancellorsville, by Augustus C. Hamlin.

Hon. John O. Turner.—Schools Laws of Alabama.

G. P. Putnam's Sons.—Redemption of the Body, by Whitehouse; Joint-metallism, by Anson Phelps Stokes.

Prof. C. C. Thach.—Rollin's Ancient History, 2 vols.; Pitkin's Political and Civil History of the United States, 2 vols.; Speeches of Celebrated Irish Orators.

DONATIONS TO THE DEPARTMENT OF ELECTRICAL ENGINEERING.

Weston Electrical Instrument Co., Newark, N. J., case of instruments showing construction.

Westinghouse Electric Co., Pittsburg, Pa., photographs.

General Electric Co., Schenectady, N. Y., 5-horse power induction motor.

Electric Appliance Co., Chicago, Ill., standard thermometer.

Iron Clad Rheostat Co., Westfield, N. J., two iron clad rheostats.

Anderson Water, Light and Power Co., Anderson, S. C., four transformers.

General Electric Co., Schenectady, N. Y., photographs.

Carborundum Co., Niagara, N. Y., samples of carborundum.

Klemm & Co., Philadelphia, Pa., lamp reflector.

New York and Ohio Co., Warren, O., "X" Ray tube.

Beacon Lamp Co., Boston, Mass., "X³" Ray tube.

L. E. Knott Apparatus Co., Boston, Mass., "X" Ray tube.

DONATIONS TO DEPARTMENT OF PHARMACY.

1. Konseal Apparatus, J. M. Grosvenor & Co., Boston, Mass.
2. Materia Medica Specimens, Lehn & Fink, New York.
3. Materia Medica Specimens and Pharmaceutical Preparations, The Mellor & Rittenhouse Co., Philadelphia.

DONATIONS TO MECHANICAL DEPARTMENT.

Deane Steam Pump Co., Holyoke, Mass., set of castings for vacuum pump.

PERIODICALS.

The following periodicals are regularly received in the main library and are accessible to students.

LITERARY.

QUARTERLIES.

Current History,
Economic Journal,
Edinburgh Review,
Political Science Quarterly,
Quarterly Journal of Economics,
Quarterly Review,
Sewanee Review.

MONTHLIES.

Atlantic Monthly,
Blackwood's Magazine,
Bookman,
Book Reviews,
Century Magazine,
Chautauquan,
Contemporary Review,
Cosmopolitan,
Eclectic Magazine,
Education,
Educational Review,
Fortnightly Review,
Forum,
Harper's Monthly,
McClure's Magazine,
Munsey's Magazine,
Nineteenth Century,
North American Review,
Review of Reviews,
Scribner's Magazine,
Westminster Review.

WEEKLIES.

Academy,
Athenaeum,
Critic,
Dial,
Harper's Weekly,
Independent (New York),
Literary Digest,
Literary World (Boston),
Nation,
Saturday Review,
Spectator.

SCIENTIFIC.

American Machinist,
American Journal of Mathematics,
Cassier's Magazine,
Electrical Engineer,
Electrical Review,
Electrical World,
Electrician,
Engineering,
Engineering Magazine,
Engineering and Mining,
Engineering News,
Journal of Franklin Institute,
Machinery,
Mathematical Monthly,
Power,
Scientific American,
Sibley Journal of Mechanical Engineering,
Transactions American Institute of Electrical Engineers.

SCIENTIFIC JOURNALS

and newspapers received in the agricultural experiment station library.

American Agriculturist,
American Corn and Hog Journal,
American Cultivator,
American Gardening,
American Geologist,
American Journal of Science,
American Monthly Microscopical Journal,
American Naturalist,
American Swineherd,
Analyst,
Anatomischer Anzeiger,
Annales Agronomiques,
Annales des Sciences Naturelles: Botanique,
Annals Society Entomology,

Annals of Botany,
Annals & Mag. Natural History,
Anthony's Photographic Bulletin,
Annals des K. K. Nat. Hist.,
Asa Gray's Bulletin,
Botanical Gazette,
Botanisches Centralblatt,
Breeder's Gazette,
Bulletin N. Y. Botanical Garden,
Bulletin Torrey Botanical Club,
Bulletin Society of Entomology,
Berliner Thierærztliche Wochenschrift,
Chemical News,
Centralblatt fuer Bakteriologie, I,
Centralblatt fuer Bakteriologie, II,
Commercial and Financial Chronicle,
Comptes Rendus,
Country Gentleman and Cultivator,
Die Landwirt. Versuchs-Stationen,
Deutsche Zeitschrift fuer Tiermedicine,
Deutsche Landwirtschaftliche Presse,
Drainage Journal,
Dairy World,
Elgin Dairy Report,
Entomological Monthly Magazine.
Entom. Nachrichter,
Erythea,
Farm and Home,
Farmer's Guide,
Farm and Fireside,
Farmer's Home,
Farmer's Voice,
Farming,
Farmers' Gazette of New South Wales,
Florida Farmer and Fruit Grower,
Forester,
Garden and Forest,
Gardener's Chronicle,
Grange Visitor,
Geological Magazine,
Herwigia,
Hoard's Dairyman,
Homestead,
Horticultural Gleaner,
Holstein-Friesian Register,
Hufschmied,
Indiana Farmer,
Industrial American,
Journal d'Agriculture Pratique,
Journal fuer Landwirtschaft,
Journal Cincinnati Society of Natural History,
Journal American Chemical Society,
Journal of Chemical Industrial Society,
Journal of Botany,
Journal of Comparative Pathology and Therapeutics,
Journal of Geology,
Journal Chemical Society (England),
Journal of Horticulture,
Journal Royal Agricultural Society,
Journal Royal Microscopical Society,
Landwirt Jahrbuecher,
Market Garden,
Massachusetts Ploughman,
Meehans' Monthly,
Memoirs Torrey Botanical Club,
Montana Fruit Grower,
Naturæ Novitates,
Natural Science,
Nature,
Optical Lantern Magazine,
Our Grange Home,
Practical Farmer,
Pacific Coast Dairyman,
Proceedings Rochester Academy of Science,

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Pittonia,
Philosophical Magazine,
Photographic Times,
Popular Science Monthly,
Prairie Farmer,
Proceedings Academy of Natural Science, Philadelphia,
Rural New Yorker,
Science,
Southern Cultivator,
Southern Farmer,
Southern Farm Gazette,
Southern Farm,
Southern Planter,
Successful Farmer,
Texas Farm and Ranch,
Transactions Entomological Society,
Veterinary Journal,
Veterinary Magazine,
Wallaces' Farmer,
Wilson's Quart'ly (Ornithology),
Wilson's Photographic Magazine,
Zeitschrift fuer Anal. Chem.,
Zeitschrift fuer Fleisch- und Milch-Hygiene,
Zoologischer Anzeiger,
Zeitschrift fuer Tiermedicine.

ADDENDA TO REGISTER OF STUDENTS.

Levi Alexander Ezell.....Jefferson.
James Heustis Jones.....Wilcox.
John Paul Jones.....Wilcox.
Winston Boykin Jones.....Wilcox.

Total Number of Students.....361.



Catalogue of the Alabama Polytechnic Institute

1897

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OCLC:  36819614          Rec stat:    n
Entered:    19970429     Replaced:    19970429     Used:    19970429
Type:  a    ELvl:  I    Srce:  d    GPub:  s    Ctrl:       Lang:  eng
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  2  007     h ǂb c ǂd b ǂe f ǂf u ǂg b ǂh a ǂi u ǂj p ¶
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  4  090     LD271 .A76 ¶
  5  090     ǂb  ¶
  6  049     AAAA ¶
  7  110 2   Agricultural and Mechanical College of Alabama. ¶
  8  245 10  Catalogue of the Alabama Polytechnic Institute ǂh [microform] ¶
  9  246 10  Catalog of the Alabama Polytechnic Institute ¶
 10  260     Auburn, Ala. : ǂb The College, ǂc 1894-1899. ¶
 11  300     6 v. : ǂb ill. ; ǂc 23 cm. ¶
 12  310     Annual ¶
 13  362 0   1893-94-1898-99. ¶
 14  515     Issue for 1898-99 carries designation 1899-1900. ¶
 15  500     "State Agricultural and Mechanical College." ¶
 16  533     Microfilm. ǂm 1894-1899. ǂb Mobile, Ala. ǂc Document Technology,
ǂd 1997. ǂc   microfilm reels : negative ; 35 mm. ¶
 17  539     d ǂb 1894 ǂc 1899 ǂd alu ǂe u ǂf u ǂg a ¶
 18  610 20  Agricultural and Mechanical College of Alabama ǂx Curricula ǂx
Periodicals. ¶
 19  780 00  Agricultural and Mechanical College of Alabama. ǂt Catalogue of
the State Agricultural and Mechanical College of Alabama ¶
 20  785 00  Alabama Polytechnic Institute. ǂt Catalogue of the Alabama
Polytechnic Institute ¶
 21  830  0  USAIN State and Local Literature Preservation Project ¶
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MAIN BUILDING
ALABAMA
POLYTECHNIC INSTITUTE.

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MAIN BUILDING,
ALABAMA
POLYTECHNIC INSTITUTE.



CATALOGUE

OF THE

Alabama Polytechnic Institute.

STATE

AGRICULTURAL AND MECHANICAL

COLLEGE.

1897-98.

AUBURN, ALABAMA.

MONTGOMERY, ALA.:
THE BROWN PRINTING CO., STATE PRINTERS AND BINDERS,
1898.

TRUSTEES.

His Excellency, JOSEPH F. JOHNSTON, President.....*Ex-officio*.
J. O. TURNER, Superintendent of Education.....*Ex-officio*.

J. G. GILCHRIST.....(term expires 1903).....Hope Hull.
TANCRED BETTS.....(term expires 1903).....Huntsville.
WALTER C. WHITAKER....(term expires 1903).....Tuscaloosa.

JONATHAN HARALSON.....(term expires 1901).....Selma.
THOS. WILLIAMS.....(term expires 1901).....Wetumpka.
J. A. BILBRO .....(term expires 1901) .....Gadsden.

I. F. CULVER.....(term expires 1899).....Union Springs.
T. H. FRAZER.....(term expires 1899).....Mobile.
H. CLAY ARMSTRONG.....(term expires 1899) .....Auburn.
R. H. DUGGAR.....(term expires 1899).....Gallion.

E. T. GLENN, Treasurer.
J. H. DRAKE, M. D., Surgeon.

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FACULTY AND OFFICERS.

WM. LEROY BROUN, M. A., LL. D.,
President and Professor of Physics and Astronomy.

OTIS D. SMITH, A. M.,
Professor of Mathematics.

P. H. MELL, M. E., PH. D.,
Professor of Botany and Geology.

JAMES H. LANE, C. E., A. M., PH. D., LL. D,
Professor of Civil Engineering and Drawing.

CHARLES C. THACH, A. M.,
Professor of English and Political Economy.

GEORGE PETRIE, M. A., PH. D.,
Professor of History and Latin.

A. F. McKISSICK, A. M., M. M. E.,
Professor of Electrical Engineering and Physics.

B. B. ROSS, M. Sc.,
Professor of General and Agricultural Chemistry and State Chemist.

CHARLES H. ROSS, C. E., PH. D.,
Professor of Modern Languages.

J. J. WILMORE, M. E.,
Professor of Mechanical Engineering and Director of Laboratory.

C. A. CARY, B. Sc., D. V. M.,
Professor of Physiology and Veterinary Science.

MAGNUS. O. HOLLIS, 1st Lieut. 4th Inf. U. S. A. (West Point),
Commandant and Professor of Military Science.

E. R. MILLER, PHAR. M., M. Sc.,
Professor of Pharmacy.

J. F. DUGGAR, M. Sc.,
Professor of Agriculture.

F. S. EARLE,
Professor of Biology and Horticulture.

C. F. BAKER, B. Sc.,
Assistant Professor of Zoology.

207881

B. H. CRENSHAW, M. E.,
Instructor in Mechanic Arts and Mathematics.

C. L. HARE, M. Sc.,
Instructor in Chemical Laboratory.

R. J. TRAMMELL, C. E.,
Instructor in Mechanic Arts.

H. H. KYSER, E. & M. E.,
Instructor in Physical Laboratory.

W. L. FLEMING, M. Sc.,
Assistant Librarian.

M. T. FULLAN,
Assistant in Mechanic Arts.

R. D. WEBB, B. Sc.,
Assistant in English.

F. L. TATE, B. Sc.,
Assistant in English and Mathematics.

G. M. HOLLEY, B. Sc.,
Assistant in Mathematics.

G. N. MITCHAM, B. Sc.,
Assistant in Civil Engineering and Drawing.

W. W. HILL, B. Sc.,
Assistant in Mechanic Arts.

E. B. JOSEPH, B. Sc.,
Assistant in Chemistry.

W. P. LEONARD, B. Sc.,
Assistant in Agriculture.

T. G. CONNER, B. Sc.,
Assistant in Electrical Engineering.

J. B. HOBDY, B. Sc.,
Assistant in charge of Gymnasium.

W. J NIXON, B. Sc.,
Assistant in Veterinary Science.

B. S. PATRICK, B. Sc.,
Assistant in History and Latin.

OFFICERS

OF THE

AGRICULTURAL EXPERIMENT STATION.

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION.

I. F. CULVER.....Union Springs.
J. G. GILCHRIST.....Hope Hull.
H. CLAY ARMSTRONG.....Auburn.

STATION COUNCIL.

WM. LEROY BROUN.....President.
P. H. MELL.....Botanist.
B. B. ROSS.....Chemist.
C. A. CARY.....Veterinarian.
J. F. DUGGAR.....Agriculturist.
F. S. EARLE.....Biologist and Horticulturist.
C. F. BAKER.....Entomologist.
J. T. ANDERSON, PH. D.....Associate Chemist.

ASSISTANTS.

C. L. HARE.....First Assistant Chemist.
R. G. WILLIAMS, M. Sc.....Second Assistant Chemist.
T. U. CULVER.....Superintendent of Farm.



LANGDON HALL.

OBJECT OF THE COLLEGE.

The leading object of the College, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and the applications of science.

In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline obtained by the study of language and other sciences is not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

The College, in fact, is a distinctive school of industrial science—or POLYTECHNIC INSTITUTE—a title which, by resolution of the Trustees, is permitted to be inscribed in the catalogue,—and work of great value to the youth of the State is being accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The College now possesses facilities for giving laboratory instruction in applied science in the following departments:

I—IN AGRICULTURE AND HORTICULTURE.

The farm contains 226 acres, and is supplied with illustrative specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

II—IN MECHANIC ARTS.

The laboratory of mechanic arts is used as an auxiliary in industrial education, and as a school in manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is *instructive* in character, as in any other laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the College each student enters this school and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus by associating manual and mental training, to educate thoroughly the student for the duties of life, whatever may be his vocation. There is no

attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall, 90 x 50 feet, and is provided with a twenty-five horsepower Corliss engine, a planer, circular saw, band-saw, two scroll saws, a buzz planer, a pattern maker's lathe, twenty-four stands each with a lathe and a full set of tools, and thirty benches for carpentry work with the tools requisite for construction.

A brick building, 30 x 87 feet, with two rooms, has been constructed especially for instruction in working iron.

One room is equipped with sixteen forges and tools required for a forge department, and the other with a Colliau cupola furnace, a core oven, a brass furnace, molding benches, a foundry crane constructed by students, and special tools for use in a foundry.

The forge and foundry rooms are furnished with a Sturtevant fan and exhauster, supplied with power from a ten horsepower engine, constructed by the students in mechanic arts.

The machine department occupies a brick building, 30 x 50 feet, and is equipped with ten engine lathes, one speed lathe, one 20-inch drill press, one 10-inch sensitive drill, one post drill, one 16-inch shaper, one 5-foot planer, one universal milling machine, a corundum tool grinder, a small emery grinder, a universal cutter and reamer grinder, a No. 1 Brown & Sharpe universal grinding machine, and a power hack saw.

The chipping and filing department is arranged with benches, vises and tools for twelve students.

The tool room is well supplied with special tools for use in instruction, including a machine for grinding twist drills. The rooms are lighted with electricity whenever necessary.

III—IN PRACTICAL CHEMISTRY.

The chemical laboratory is supplied with modern apparatus, and in its equipment affords excellent facilities for instruction in practical chemistry and for investigation.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research. The building contains a large general laboratory that will accommodate sixty students, a lecture room with a capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

IV—IN ELECTRICAL ENGINEERING.

The electrical laboratory is well supplied with modern appliances for instruction in electrical engineering. It occupies two large rooms in the basement, and is equipped with many fine instruments of precision: Kelvin deka-ampere balance, Kelvin graded current and potential galvanometers, Cardew voltmeter, Weston voltmeters and ammeter, Queen's magnetic vane voltmeter and ammeter, Thomson watt-meter, Hartman and Braun voltmeter, Kohlrausch ammeter, Wood ammeter, Weston alternating current voltmeter, Weston direct reading watt-meter, Queen's "Acme" testing set, Rowland–D'Arsonval galvanometer, Kelvin electrostatic voltmeter, Edison ammeters, and many other current-measuring instruments, resistance boxes, Wheatstone bridges, condensers, telephones, batteries, magnets, etc.

The dynamos occupy a separate building and are operated by a twenty-five horse power Atlas engine, and a thirty-five horse power Westinghouse engine. In this building are installed the following dynamos:

Edison compound 12 Kilo-watt generator, Thomson-Houston 150 light 110 volt dynamo, Weston 150 volt 25 ampere generator, Crocker-Wheeler one horse power motor, Brush 6 arc light dynamo with lamps, two Baxter street car

moters, 20 horse power each (so connected as to be used as direct or alternating current motors or generators), one 5 horse power three phase motor, one General Electric 20 horse power motor, one 40 light shunt dynamo, one Edison 3 Kilo-watt generator, one Stanley induction motor with condenser, two bi-phase induction motors (built by students), one 9 light Thomson-Houston arc machine, two phase alternator and 500 volt 20 ampere generator, made by students. There is also in connection with this department at the experiment station, a ten horse power motor, made by students, which is operated by the 500 volt generator in the dynamo room.

V—IN PHYSICS.

In the College building provision is made for elementary laboratory work in the department of physics. Special rooms in the basement are appropriated for this purpose, and are equipped with the necessary appliances for instruction in practical physics.

VI—IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate thirty students, with an excellent collection of minerals.

VII—IN BOTANY.

In the work of the agricultural experiment station there is a botanical garden under the charge of the professor of botany, investigations in botany are given special attention, and opportunities are offered advanced students for practical work in a laboratory especially fitted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research. This department is provided with Auzoux's clastic models of seeds and flowers for teaching botany.

VIII—IN BIOLOGY.

The laboratory in this department adjoins the lecture room of the professor, and is furnished with tables, excellent microscopes and appliances for investigation. Each student of the class works under the supervision of the professor.

IX—IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, models of bridges, etc., is provided for the use of the students, and the customary exercises in the field are given.

X—IN DRAWING.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing-room, which will accommodate fifty students, is provided with tables, lock boxes, etc.

XI—IN MECHANICAL ENGINEERING.

The mechanical course has been extended to include experimental work in mechanical engineering.

The apparatus available for this instruction is as follows: A 45 horse power Imperial Cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Deane air pump and circulating pump, a 25 horse power Harris-Corliss engine, a 35 horse power Westinghouse engine, a 25 horse power Atlas engine, two 9 horse power engines constructed by students, the boilers belonging to the regular power plant, a small engine and boiler for the special purpose of making efficiency tests, a Deane duplex steam pump, a four horse power gasoline engine, an Ericsson hot air engine, a New York air pump, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, thermometers, a pyrometer, scales, a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester with

weights for correcting the standard gauge, a 35,000-pound testing machine, a Henning micrometer extensometer, and a Carpenter calorimeter with the necessary auxiliary apparatus for determining the heating value of different kinds of coal.

This work is now carried on in the lower story of the annex to the chemical laboratory. This room is 30 x 60 feet in size and was specially designed and fitted up for this purpose. A three-inch steam main has been laid from the boiler house, thus securing a steam supply in the building for all work requiring it. The work is thoroughly practical, and it is desired to extend it as rapidly as the funds available for the purchase of apparatus will allow.

XII—IN PHYSIOLOGY AND VETERINARY SCIENCE.

There has been constructed for the veterinary department a new and separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, and museum with skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

XIII—IN PHARMACY.

The laboratory of this department occupies the second floor of the annex to chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations.

The students work in the laboratory with the professor, from five to eight hours, six days in the week.

It is expected to increase the facilities as means are available.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is

used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is under the charge of Lieut. M. O. Hollis, 4th Infantry, U. S. A.

It is supplied with new cadet muskets and accoutrements for the corps.

COLLEGE BUILDINGS.

The frontispiece is a representation of the main College building. It is 160 x 71 feet and contains forty-five rooms. This building is not used for dormitories for students, but is appropriated to purposes of instruction and investigation.

It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc.

LANGDON HALL.

This is a two-story building, 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

The first story is appropriated to the laboratory of mechanic arts.

THE CHEMICAL LABORATORY,

As shown on the opposite page, is a two story structure, 40 x 60 feet, with a rear projection, 35 x 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and terra-cotta ornamentation.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains improved working tables, with water, gas and every necessary appliance for chemical work.

The second story contains a lecture room with seats and tablets for eighty students. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and industrial chemistry, prominent subjects taught in the institution.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building containing rooms for mechanical engineering, pharmacy, and drawing.



CHEMICAL LABORATORY.

BI

GRADUATES IN 1897.

CLASS OF 1897.

HONOR GRADUATES.

COURSE IN CHEMISTRY AND AGRICULTURE.

Edwin Boyce Joseph ..... Montgomery.

COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

Thomas Ganaway Conner ..... Macon.

COURSE IN CIVIL ENGINEERING.

George Nathan Mitcham ..... Georgia.

GENERAL COURSE.

Peyton Graves Clark ..... Montgomery.

DEGREES.

BACHELOR OF SCIENCE.

William Kirk Armstrong ..... Lee.
Erister Ashcraft ..... Lee.
Richard Manning Boykin ..... South Carolina.
Edgeworth Stephens Casey ..... Jefferson.
Peyton Graves Clark ..... Montgomery.
Robert Walter Collins ..... Hale.
Thomas Ganaway Conner ..... Macon.
George Leonard Faucett ..... Randolph.
William Alexander Fitzgerald ..... Georgia.
Gaston Greil ..... Montgomery.
Joseph Herzfeld ..... Tallapoosa.
John Fletcher Heard ..... Lee.
William Welch Hill ..... Talladega.
John Buford Hobdy ..... Bullock.
George Michael Holley ..... Georgia.
William Alexander Hood ..... Jefferson.
Clarence Neil Jones ..... Montgomery.
Edwin Boyce Joseph ..... Montgomery.
Adus Edwin Killebrew ..... Dale.

Earle Foster Lee ....Lee.
William Parker Leonard.....Georgia.
Warren Horton McBryde.....Mobile.
William Wrice McLeran.....Macon.
George Nathan Mitcham.....Georgia.
Wade Hampton Negus..... Mississippi.
Charles Johnston Nelson.....Dallas.
William Jacob Nixon.....Tennessee.
Benjamin Sweat Patrick.....South Carolina.
James Lawrence Pollard.....Russell.
Leonard Calloway Pratt.....Bibb.
John Purifoy..... .....Lee.
John Wesley Purifoy.....Perry.
Berry Lathum Scott.....Texas.
Oliver John Semmes.....Mobile.
Samuel Toliver Slaton.....Macon.
Frederick Loyd Tate.....Russell.
Merrick Dowdell Thomas..... .....Chambers.
Paul Vines .....Tallapoosa.
William Tilman Warren.....Montgomery.
Reuben David Webb.....Coosa.
Noble James Wiley.... .....Montgomery.
George Wrigley.....Georgia.
Thomas Jefferson Brooks (class of 1890).....Georgia.

MASTER OF SCIENCE.

Charles Nutting Alford.....Marshall.
William James Beeson.....Etowah.
Joseph Quarterman Burton..... Lee.
Walter Lynnewood Fleming.....Pike.
Hampton Sanders Henderson.....Talladega.
George Bates Kelley.....Jefferson.
Benjamin Asbury Taylor..... Autauga.
William Martin Williams.....Georgia.

ELECTRICAL AND MECHANICAL ENGINEER.

Jesse Boland Edwards..... ...Talladega.

DISTINGUISHED STUDENTS.

Students who receive a grade above 90 in three studies in the freshman class; in four in the sophomore, in five in the junior, and in six in the senior, are distinguished for excellence in scholarship, and are awarded

HONOR CERTIFICATES.

The following students received honor certificates in 1897:

SENIOR CLASS.

Erister Ashcraft	Lee.
Robert Walter Collins	Hale.
Thomas Ganaway Conner	Macon.
William Welch Hill	Talladega.
John Buford Hobdy	Bullock.
George Michael Holley	Georgia.
Clarence Neil Jones	Montgomery.
George Nathan Mitcham	Georgia.
Wade Hampton Negus	Mississippi.
William Jacob Nixon	Tennessee.
Frederick Loyd Tate	Russell.
Reuben David Webb	Coosa.

HONOR STUDENTS IN THE JUNIOR CLASS.

COURSE IN CHEMISTRY AND AGRICULTURE.

Arthur McBride Ransom	Georgia.

COURSE IN ELECTRICAL AND MECHANCAL ENGINEERING.

Jonathan Haralson	Dallas.

COURSE IN CIVIL ENGINEERING.

Thomas Harrison Clower	Lee.

GENERAL COURSE.

Halbert Clyde Ray	Geneva.

JUNIOR CLASS.

Erin Black.....Lee.
Mary Wright Boyd.....Lee.
Thomas Harrison Clower.....Lee.
Pearl Hanson.....Lee.
William Earle Hudmon.....Lee.
Jessie Hamilton Lockhart.....Georgia.
Julia Hill Moore.....Lee.
Annie Lucinda Purifoy.....Lee.
Arthur McBride Ransom.....Georgia.
Halbert Clyde Ray.....Geneva.
Marie Louise Scott.....Lee.
Rush Price Strong.....Mobile.

SOPHOMORE CLASS.

Flake Earle Farley.....Lee.
Walter Eldridge Johnson.....Madison.
Julien Chandler Yonge.....Florida.

CATALOGUE OF STUDENTS

FOR THE SESSION OF 1897-98.

Graduate Students.

[*Residence is Alabama when State is not given.*]

NAME.	RESIDENCE.
William Kirk Armstrong	Lee.
Robert Walter Collins	Hale.
Thomas Ganaway Conner	Macon.
James Washington Culver	Lee.
George Webster Duncan	Lee.
Walter Lynnewood Fleming	Pike.
George Thomas Edgar	Tuskaloosa.
John Louis Glenn	Butler.
Arthur Williamson Greene	Chambers.
William Welch Hill	Talladega.
John Buford Hobdy	Bullock.
Walter Pearce Holcombe	Mobile.
George Michael Holley	Georgia.
Edwin Boyce Joseph	Montgomery.
William Parker Leonard	Georgia.
George Nathan Mitcham	Georgia.
William Jacob Nixon	Tennessee.
Benjamin Sweat Patrick	South Carolina.
John Purifoy	Lee.
Frederick Loyd Tate	Russell.
Sheldon Lyne Toomer	Lee.
Reuben David Webb	Coosa.
George Wrigley	Georgia.

UNDERGRADUATE STUDENTS.

SENIOR CLASS.

John Cocke Abernethy	Florida.
Lemuel Sledge Allen	Marengo.
Erin Black	Lee.
Mary Wright Boyd	Lee.
William Hamill Bruce	Montgomery.
Alexander Humphreys Clark	Montgomery.
Henry Neal Coleman	Lowndes.
George Oliver Dickey	Crenshaw.
Duncan Patterson Dixon	Talladega.
Clifford Lamar Edwards	Lee.
Richard Roe Eppes	Marengo.
Frank Reese Frazer	Lee.
Frank Farley	Lee.
William Shelby Garner	Shelby.
Elmer Wynn Gray	Georgia.
Jonathan Haralson	Dallas.
Francis Williams Hare	Lee.
Charles Edward Harrison	Florida.
Harry Streety Houghton	Jefferson.
William Earle Hudmon	Lee.
Joseph Wood King	Georgia.
Absalom Mason Kennedy	Montgomery.
Jessie Hamilton Lockhart	Georgia.
George Edward Mason	Shelby.
John Richard McCalla	Lee.
Peter Mastin McIntyre	Montgomery.
Henry Edmund Memminger	South Carolina.
William Augustus Mitchell	Georgia.
Julia Hill Moore	Lee.
Frank Greene Morriss	Talladega.
Ashleigh Strudwick Moses	Baldwin.
John Sanford Paden	Etowah.
Alexander Simpson Pow	Jefferson.
Annie Lucinda Purifoy	Lee.

Arthur McBride Ransom.....Georgia.
Halbert Clyde Ray .....Geneva.
James Barrie Shivers.....Perry.
Newton Caraway Smith.....Shelby.
Clifford West Stewart.....Montgomery.
William Livingston Stewart .....Montgomery.
William Bee Stokes.....Marion.
Edward Wadsworth Stone.....Montgomery.
Rush Price Strong.....Mobile.
Joseph Wilson Sutcliffe .....Louisiana.
Almuth Cunningham Vandiver.....Talladega.
Bishop Billing Warwick.....Talladega.
John Wesley Williams .....Lee.
Joseph Leonard Wood .....Mobile.
Neander Montgomery Woods.....Tennessee.

JUNIOR CLASS.

LeRoy James Allen.....Marengo.
Jesse Maldrie Atkinson.....Dale.
Alston Boyd .....Tennessee.
William Bowdon Beard (c).....Pike.
Harriet Lavinia Dabney Bondurant (c)....Lee.
Bailey Edgar Brown.....Morgan.
Mattie Lucile Burton.....Lee.
Thomas Greene Bush.....Calhoun.
Charles Wallace Collins.....Hale.
George Davis Collins (c).....Hale.
McNeill Crawford.....Lee.
Colonel Seldon Crew.....Coosa.
Frederick Robert Daly.....Jefferson.
Bolivar Davis.....Jefferson.
Claude Davidson .....Georgia.
Marion Dawson.....Elmore.
James Francis Dobbin (c).....Florida.
Allan Willis Elkins.....Texas.

(c) Conditioned.

Flake Earle Farley.....Lee.
Arthur Henry Feagin.....Bullock.
Hugh Matherson Fenn (c).....Barbour.
Jones Stephen Gilliland.....Coosa.
John Ross Glenn.....Lee.
Theophilus Eaton Goodwin.....Crenshaw.
Fannie Maud Holstun.....Lee.
Felix Grundy Horn (c).....Sumter.
Walter Eldridge Johnson.....Madison.
James Heustis Jones.....Wilcox.
Winston Boykin Jones.....Wilcox.
Kate Meade Lane.....Lee.
Lottie Everard Lane.....Lee.
Harry Toulmin Lay (c).....Mobile.
Thomas Herrington McAdory.....Jefferson.
Isham Fennell McDonnell.....Madison.
Graham Edwin Merchant.....Lee.
Charles Henry Merritt (c).....Chilton.
Chadwick Wiley Minge.....Marengo.
Hartley Allen Moon.....Coosa.
Auline Judson Moore (c).....Lee.
Angelo Marvin Nowlin.....DeKalb.
James Royden Peabody.....Georgia.
Hattie Marshall Phelps.....Lee.
Lawrence Bratton Rainey.....DeKalb.
Archie McDonnell Robinson (c).....Madison.
Mary Evelyn Robinson.....Lee.
Wilmer Chatham Robinson (c).....Tallapoosa.
John Osgood Rush.....Lee.
William Oscar Scroggs.....Georgia.
James Cary Slaton.....Macon.
William Alexander Thomason (c).....Randolph.
Dozier Turner (c).....Elmore.
James Alfred Ward.....Madison.
Thomas William Wert.....Morgan.
George Madison Wheeler.....Madison.
Julien Chandler Yonge.....Florida.

(c) Conditioned.

SOPHOMORE CLASS.

William Lawrence Anderson.....Montgomery.
Fletcher Ashcraft .....Lee.
Buckner Beasley (c).....Lee.
Robert Pierce Baldwin.....Lee.
Malcolm Alfred Beeson.....Etowah.
John Samuel Black .....Lee.
Guy French Boyd .....Lee.
Jesse Wright Boyd.....Lee.
Abner Mason Buchanan (c).....Lee.
Edwin Bukofzer .....Tennessee.
Judson Lamar Burke .....Lee.
Salmon Holmes Burns.....Lee.
Kelly Walker Burwell.....Madison.
Andrew Crozier Cameron (c).....Jefferson.
Frank Bovard Chapman.....Louisiana.
Asbury Nicholson Culver.....Lee.
William Crawford Dowdell.....Lee.
William Beach Dozier.....Georgia.
Ellis Madison Duncan.....Franklin.
Luther Noble Duncan.....Franklin.
Rutherford Sylvanus Finch.....Montgomery.
Philip Hamilton Fitzgerald (c).....Georgia.
Robert Emmett Fitzgerald.....Georgia.
John Jefferson Flowers.....Butler.
Sherman Guy Forbes .....Henry.
Earle Humphreys Foy .....Barbour.
James Edgar Foy.....Barbour.
Hermon Gillis.....Georgia.
James Olney Goggans.....Tallapoosa.
William Weatherly Hannon .....Montgomery.
Roland B. Hall.....Georgia.
Edward Zellars Heard .....Lee.
Robert Thomas Hicks.....Talladega.
John Paul Illges (c).....Georgia.
Emmett Francis Jackson .....Lee.

(c) Conditioned.

Walter Atlee Jordan ..... Elmore.
Moses Frank Kahn ..... Lee.
Wilbur Edrald Kelley ..... Jefferson.
Strother Trabue Key ..... Jefferson.
Howard Malcolm Kilpatrick ..... Georgia.
Leon Phillippe Le Hardy ..... Georgia.
John Maples ..... Russell.
James Guy Marcrum ..... Georgia.
William Christopher Martin ..... Barbour.
Frank Clark McAlpine ..... Talladega.
Walter Deems McCrary (c) ..... Lee.
Benjamin Lee McGee (c) ..... Georgia.
James Hardie McGehee ..... Montgomery.
John Thomas McIntosh (c) ..... Tallapoosa.
Kenneth Bethune McKenzie ..... Butler.
Lafayette Murdoch Meriwether ..... Montgomery.
James Butler Mitchell ..... Lowndes.
Collett Henry Munger (c) ..... Jefferson.
Robley Charles Munger ..... Jefferson.
William Livingston Neill (c) ..... Jefferson.
Carlyle Nisbet (c) ..... Georgia.
Charles Walter Nixon ..... Tennessee.
Marion Franklin Owens ..... Cleburne.
George Benagh Phillips ..... Georgia.
Hiram Perry Powell ..... Georgia.
Fleming James Rigney ..... Madison.
James Richard Rutland ..... Chambers.
William Stowe Rutledge ..... Lee.
Herman Scharnagel (c) ..... Franklin.
Frederick Blount Shepard ..... Mobile.
John Winfred Shuff ..... Talladega.
Joseph Manning Steiner ..... Butler.
John Marion Tamplin (c) ..... Lee.
Arthur Holt Warren ..... Montgomery.
Alfred Taylor Whiteside ..... Tennessee.
James Waldo Woodruff ..... Georgia.
Moses Conrad Wright ..... Macon.

(c) Conditioned.

FRESHMAN CLASS.

James Badger Alford (c) ..... Henry.
James Otis Allen ..... Lee.
Roy Andrews (c) ..... Georgia.
Oliver Burnside Andrews ..... Tennessee.
Stearnes Pearson Baker (c) ..... Tallapoosa.
Joseph Nathaniel Barker ..... Georgia.
William Hodges Barnes (c) ..... Lee.
William Goodhue Bullard (c) ..... Calhoun.
William LeGrande Burnett ..... Barbour.
William James Cameron (c) ..... Montgomery.
Henry Moss Copeland ..... Pike.
James Lorenzo Deaton ..... Georgia.
John Isham Dorsey (c) ..... Lee.
Malcolm Nassau Fleming ..... Georgia.
Frank Pearce Folmar ..... Pike.
John Drewry Foy ..... Barbour.
William Alexander Frazer ..... Lee.
George Griffin ..... Macon.
Jacob Lionel Haas (c) ..... Montgomery.
Joseph Hines Hall (c) ..... Butler.
Wallace Benjamin Harrison ..... Talladega.
Michael Smith Harvey ..... Lee.
Benjamin Carl Hatcher (c) ..... Georgia.
William Baxter Haynes ..... Lowndes.
Daniel Haywood Haynes ..... Lowndes.
James Kelly Haynie (c) ..... Montgomery.
Robert Holland Hood ..... Jefferson.
Edwin DeWitt Huguley ..... Georgia.
Graves Ivy (c) ..... Montgomery.
Arthur Flournoy Jackson ..... Georgia.
James Baxter Jackson ..... Lee.
Leo Hopkins Johnson ..... Madison.
Alger Kauffman (c) ..... Mobile.
Claude Kauffman (c) ..... Mobile.
Hugh Worrell Lloyd ..... Tennessee.
Robert Paterson Manly ..... Georgia.

(c) Conditioned.

Daniel Stacy Martin (c) ..... Barbour.
Robert Murdoch Martin ..... Barbour.
Earle Irvin McBryde ..... Wilcox.
Stanton McKinley (c) ..... Marengo.
Benjamin Baldwin Meriwether (c) ..... Montgomery.
Erskine Miller (c) ..... Mississippi.
Abram Hill Mitchell (c) ..... Lee.
Jordan Holsey Mitchell ..... Lee.
James Crowder Moore ..... Lee.
Merrill Hastings Moore ..... Montgomery.
Peter Preer Myhand (c) ..... Lee.
Joseph Richard Parish (c) ..... Barbour.
Clovis Marvin Pearce ..... Marion.
James Cochran Phelps ..... Lee.
Frank Connor Pinkston ..... Chilton.
William Rosenau ..... Tennessee.
Oscar Menderson Schloss ..... Barbour.
Henry Alexander Skeggs ..... Morgan.
Matthew Scott Sloan (c) ..... Mobile.
Earnest Walter Thompson ..... Macon.
Abner Mason Torbert (c) ..... Macon.
Elijah Albert Turner (c) ..... Lee.
Herbert George Weedon (c) ..... Barbour.
Vernon Burleigh Whiteside (c) ..... Tennessee.
Gaius Whitfield ..... Marengo.
Edward Houston Wills ..... Lee.

(c) Conditioned.

SPECIAL AND IRREGULAR STUDENTS.

Abbreviations: Ph.—Pharmacy; E. & M. E.—Electrical and Mechanical Engineering; C.—Chemistry; Ag.—Agriculture; C. E.—Civil Engineering.

James Anderson Allen ..... C ..... Jefferson.
Frank Hammond Bancroft ..... PH ..... Perry.
Lynn Mathews Boyd ..... PH ..... Macon.
Charles Louis Bragaw ..... PH ..... Lee.
Emmett Gale Buck ..... Mobile.
Rufus White Butler ..... PH ..... Lee.

Toccoa Cozart		Montgomery.
Arthur Henry Davis	E. & M. E.	Mobile.
Ramon Eraso	E. & M. E.	Venezuela.
Michael Thomas Fullan	E. & M. E.	Georgia.
Emmett Spencer George		Marengo.
Joseph Henry Glover		Georgia.
Eula Belle Hale		Lee.
Zaide Hale		Lee.
John Dabney Hamilton	PH.	Lee.
Pearl Hanson		Lee.
Walter Avery Henson	E. & M. E.	Tennessee.
Emmett Armistead Jones	PH.	Marengo.
John Paul Jones		Wilcox.
Sidney Johnston Jones	PH.	Georgia.
Earle Benjamin Lentz	C. E.	Mobile.
George Simial Lombard		Georgia.
Barton Harris McQueen		Montgomery.
Martin Luther Malloy		Lee.
George Mathews Marks	AG.	Montgomery.
Andrew McCord		Lee.
John Mettauer McGoolrick	E. & M. E.	Georgia.
Hugh Tredegar McKinnon		Bullock.
Benjamin Otey Minge	E. & M. E.	Marengo.
George Fleming Moore	E. & M. E.	Montgomery.
George McElhany Moore		Lee.
John Peabody Moore		Georgia.
Robert Leslie Newman	PH	Lee.
Emile Thomas Peddy		Lee.
John Abner Penton	PH	Coosa.
Harry John Pettus		Montgomery.
John Percy Reid		Perry.
John Watson Rutland		Lee.
Joseph Schwartz	PH	Marengo.
Lucius Kelly Simmons	PH	Jefferson.
Sidney Ewing Simpson		Montgomery.
Berta Leonora Summers		Lee.
Fannie Louise Thomas		Lee.

George Hoover Thomson	E. & M. E.	Louisiana.
Ples May Tindell	E. & M. E.	Mobile.
Edgar Earle Upchurch	PH.	Pickens.
James Robert Vann	PH.	Henry.
Henry Beecham Visscher	PH.	Florida.
Charles Finley White		Jefferson.
William Dunbar Wills	PH.	Lee.

SUB-FRESHMAN CLASS.

George Adams	Florida.
James Walter Aids	Montgomery.
Clifford Douglas Blankenship	Montgomery.
Ellerslie Wallace Bullard	Calhoun.
Charles Clifton Brown	Montgomery.
Charles Newton Caraway	Hale.
Eugene Albert Dumas	Louisiana.
Paul Metzger Eichelberger	Calhoun.
Edward Gaston Fike	Mobile.
Robert Henry Harwell	Marengo.
Macon Leigh Jones	Jefferson.
William George Jackson	Pike.
Hubbard Hobbs Kelly	Madison.
Claud Lewis King	Perry.
Albert Sidney Lewis	Talladega.
Philip Warren Low	Montgomery.
James Philip Martin	Barbour.
Robert Lafonzo Martin	Dallas.
Ross Earnest Mattison	Calhoun.
William Emory McIntosh	Tallapoosa.
James Whitaker Nisbet	Russell.
William Marcus Peters	Perry.
Richard Blount Shepard	Mobile.
Arnold Trigg	Marengo.
Leland Dock Trippe	Marengo.
John Morgan Turner	Lee.
Calvin Earle Upchurch	Pickens.

Non Dura Ward.....Tallapoosa.
William Hubert Young.....Barbour.

SUMMARY.

Graduates	23
Senior Class	49
Junior Class	56
Sophomore Class	72
Freshman Class	62
Special and Irregular Students	50
Total in College Classes	312
Sub-Freshman Class	29
Total	341

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	260	Geology	51
History	168	Civil Engineering	12
French	52	Electrical Engineering	53
German	34	Mechanical Engineering	35
Latin	141	Biology	19
Mental Science	27	Drawing	150
Political Economy	41	Mechanic Arts	196
Mathematics	248	Military Tactics	294
Chemistry	166	Mineralogy	5
Chemical Laboratory	70	Physical Laboratory	64
Agriculture	105	Physiology	52
Physics	192	Veterinary Science	30
Botany	93	Pharmacy	~~27~~ 35
		Bacteriology	16

MILITARY ORGANIZATION,

1897-98.

President,

W. L. BROUN.

Commandant,

M. O. HOLLIS, 1st Lieut 4th Infantry, U. S. A.

Surgeon,

J. H. DRAKE.

Battalion Staff.

Cadet Captain P. M. McINTYRE, Assistant to Commandant.
Cadet 1st Lieutenant J. S. PADEN, Adjutant.
Cadet 1st Lieutenant A. McB. RANSOM, Quartermaster.
Cadet Sergeant G. M. WHEELER, Sergeant Major.
Cadet Sergeant T. G. BUSH, Quartermaster Sergeant.

Cadet Captains.

1. A. C. VANDIVER,
2. F. W. HARE,
3. C. W. STEWART,
4. J. C. ABERNETHY.

Cadet First Lieutenants.

1. J. W. WILLIAMS,
2. G. O. DICKEY,
3. H. S. HOUGHTON,
4. C. L. EDWARDS,
5. R. P. STRONG,
6. L. S. ALLEN,
7. H. C. RAY.
8. A. M. KENNEDY.

Cadet Second Lieutenants.

1. E. W. STONE,
2. C. E. HARRISON,
3. E. W. GRAY,
4. F. G. MORRISS.

Cadet First Sergeants.

1. J. C. YONGE,
2. I. F. McDONNELL,
3. J. F. DOBBIN,
4. T. W. WERT.

Cadet Sergeants.

1. C. W. MINGE,
2. L. B. RAINEY,
3. A. H. FEAGIN,
4. B. DAVIS,
5. J. M. ATKINSON,
6. A. BOYD,
7. A. W. ELKINS,
8. J. R. PEABODY (Color Sergeant),
9. J. H. JONES,
10. G. D. COLLINS,
11. J. A. WARD,
12. B. E. BROWN,
13. W. B. JONES,
14. J. R. GLENN,
15. D. TURNER,
16. W. O. SCROGGS.

Cadet Corporals.

1. H. P POWELL,
2. E. H. FOY,
3. F. ASHCRAFT,
4. G. F. BOYD,
5. W. E. KELLEY,
6. J. L BURKE,
7. R. T. HICKS,
8. J. W. SHUFF,
9. K. B. MCKENZIE,
10. J. J. FLOWERS,
11. R. P. BALDWIN,
12. J. P. ILLGES,
13. A. C. CAMERON,
14. S. T. KEY,
15. J. H. MCGEHEE,
16. F. C. MCALPINE.

REQUIREMENTS FOR ADMISSION.

All applicants for admission should present testimonials of good moral character, and those who come from other colleges must present certificates of honorable dismissal.

To enter the freshman class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography, and History of the United States.

2. English—(a) An examination upon sentences containing incorrect English. (b) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar, and division into paragraphs.

I. *Reading.* The composition in 1898 will be upon subjects drawn from one or more of the following works in English Literature: (1) Hughes's *Tom Brown at Rugby;* (2) Southey's *Life of Nelson;* (3) Shakespeare's *Julius Cæsar;* (4) Longfellow's *Evangeline;* (5) Scott's *Ivanhoe;* (6) Shakespeare's *Merchant of Venice;* (7) Irving's *Sketch Book;* (8) Macaulay's *Essay on Milton;* (9) Scott's *Marmion;* (10) Dickens's *David Copperfield.*

The candidate will be required to present evidence of a general knowledge of the subject matter, and to answer simple questions on the lives of the authors. This part of the examination is intended to test only a general knowledge of the substance of the books.

II. *Study and Practice.* This part of the examination presupposes the thorough study of the style of the work. This part of the examination will be upon *Julius Cæsar* and the *Essay on Milton.*

Preparation and examination on these works will be necessary before the student is classed as regular in any course.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers; the metric system; percentage, including interest and discount; proportion; extraction of square and cube roots. (b) Algebra to quadratic equations, one book of geometry.

Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Cæsar, in addition to the above subjects.

For admission to the higher classes, students should be prepared to stand a satisfactory examination in all of the studies of the lower classes, as shown in the courses of study. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on those subjects.

ADMISSION ON CERTIFICATE.

Applicants will be admitted without examination on presenting a certificate from any of the CERTIFICATE SCHOOLS named herein.

The following educational institutions having made application to be correlated to this College and having presented an approved course of study, are hereby declared to be CERTIFICATE SCHOOLS, and are granted the privilege set forth in the following resolution:

"Students from certificate schools will be admitted to the freshman "class *without examination* upon the certificate of the president or "principal showing definitely that such students have completed satis- "factorily all the studies required for admission, as stated in the cata- "logue, and are otherwise admissible."

CERTIFICATE SCHOOLS.

University Military School, Mobile	J. D. Wright.
*Verner Military Institute, Tuscaloosa	W. H. Verner.
*University School, Montgomery	J. M. Starke.
*Mt. Willing High School, Mt. Willing	J. D. Garrett.
State Normal School, Jacksonville	J. Forney.
Male Academy, Huntsville	Puryear & Wyatt.
*State Normal College, Florence	M. C. Wilson.
Furman Academy, Livingston	L A. Cockrell.
High School, Opelika	J. M. Smallwood.
Union Springs Institute	J. B. Murphy.

*Applicants are admitted to the sophomore class on approved certificates from these institutions.

University Military School, Clanton.....E. Y. McMorries.
N. A. Agricultural School, Athens.....M. K. Clements.
W. Ala. Agricultural School, Hamilton.....Jas. E. Alexander.
Eutaw Male Academy, Eutaw.....H. C. Horton.
Boys' High School, Anniston.....H. C. Gunnels.
Taylor's School, Birmingham.....W. P. Taylor.
Gaylesville High School.....John L. Ray.
Carrollton Academy.....L. V. Rosser.
Ninth District Agricultural School, Blountsville..W. J. Beeson.
Gadsden High School.....I. W. Hill.
Boyd High School, Ramer.....B. H. Boyd.
Dadeville High School.....A. W. Holstun and J. D. Lane.

ADMISSION OF YOUNG WOMEN.

The privilege of becoming students in this College is granted by the Trustees to young women of mature mind and character, on the following conditions:

The applicant must be eighteen years of age, and if a candidate for a degree, be able to pass a satisfactory examination in each of the four subjects as named below.

If the applicant is a candidate for admission as a special or irregular student, she must be able to pass a satisfactory examination in two of the subjects named.

(a) In English—Proficiency in spelling and punctuation; Grammar (Lockwood-Whitney); Rhetoric (Lockwood's Lessons and Genung's Outlines of Rhetoric); Scudder's Masterpieces of American Literature; Syle's From Milton to Tennyson.

For requirements in reading in literature see page 32.

(b) In History—Macy's Our Government; Chambers's History of the United States; Myers's General History.

(c) In Mathematics—Arithmetic; Algebra, including quadratic equations, logarithms and series; Plane and Solid Geometry; Plane and Analytical Trigonometry, as in Wentworth.

(d) In Latin—Grammar, including the forms and syntax; Jones's Latin Prose Composition; translation of selections

from Cæsar, Nepos, Virgil, Cicero's Orations, Cicero's Letters, or the equivalent.

The equivalents of these subjects, as in above text-books, may be substituted.

Botany will constitute a required part of the general course for young women who are candidates for a degree.

When admitted, upon complying with the conditions above stated, they may enter upon the study of any subject taught in the College and join any class, for which, upon examination, they may be found qualified. The only condition imposed will be that they engage in earnest study, and attend the exercises regularly. They will board in the town with private families and attend college only at the hours of their exercises.

The Trustees authorize the Faculty to admit a candidate for a degree at the age of seventeen, provided she is able to comply with all the requirements for admission in the four subjects named and the application meets with its approval.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 15th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the freshman class are admitted to the sub-college department.

They will be advanced to full admission to the freshman class when they are qualified to pass satisfactorily the required examinations.

Students, upon their arrival at Auburn, will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing, and military drill. These additional exercises

occupy not less than twelve hours per week, and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of electing studies in the lower classes is not granted to young students nor to their parents. The Faculty will assign a student, on admission, to that class of a prescribed course for which he is qualified; and for special reasons, approved by the Faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age that are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study for which they may be qualified.

A student who does not take all the studies in a class of one of the degree courses, as prescribed in the catalogue, and is permitted to take an irregular course, will be assigned to a member of the Faculty, who will act as his special adviser, and when his course of study has been approved by the Faculty no other change will be permitted without the endorsement of his adviser.

Regular students who fail to pass satisfactory final examinations in any one study become special students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students, candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

ADMISSION TO HIGHER CLASSES.

At the beginning of each term a student in the sub-freshman class may, on application approved by the Faculty, be examined for admission to the freshman class in history, English, mathematics, or Latin, and if his examination is satisfactory in any subject, he will be admitted to the freshman class in that subject only.

Students who have completed satisfactorily all the studies of the sophomore class, as prescribed in the catalogue, in any one of the regular degree courses, can enter, without condition, the junior class in any course, except in the general course, or the course in pharmacy, in which Latin is required.

Students who are admitted to the junior class from other institutions, on examination in English, Latin, and mathematics, and who have not completed all the studies of the sophomore class, in order to graduate, will be required to complete the course in chemistry and history as taught in the sophomore class.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical, and Natural Sciences, with their applications; Agriculture; Biology; Mechanics; Astronomy, Mathematics, Drawing; Civil, Electrical, and Mechanical Engineering; Physiology and Veterinary Science; Pharmacy; English, French, German, and Latin Languages; History, Political Economy; Mental and Moral Sciences.

These studies are arranged in regular courses so as to offer a liberal and practical education as a preparation for the active pursuits of life.

There are five degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. Sc.) and requiring four years for its completion:

I. COURSE IN CHEMISTRY AND AGRICULTURE.
II. COURSE IN CIVIL ENGINEERING.
III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.
IV. GENERAL COURSE.
V. COURSE IN PHARMACY.

There are also two partial courses, each requiring two years for its completion:

VI. TWO-YEAR COURSE IN AGRICULTURE.
VII. TWO-YEAR COURSE IN MECHANIC ARTS.

Course I includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture and chemical pursuits.

Course II includes the principles and applications of the sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course III includes, besides the general principles and

applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged for the profession of electrical and mechanical engineering.

Course IV has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching or in some commercial or professional business.

Course V includes, besides the general education of course IV in the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Courses VI and VII have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, will be awarded a certificate of proficiency in said subject.

Students who complete either of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English.

Declamation and themes or orations are required of all regular students pursuing courses leading to a degree.

POST-GRADUATE COURSES.

The post-graduate degrees are—MASTER OF SCIENCE, MINING ENGINEER, CIVIL ENGINEER, ELECTRICAL AND MECHANICAL ENGINEER, and PHARMACEUTICAL CHEMIST.

A more extended post-graduate course of study may be taken by a graduate of this College or of any other institution of equal grade. The completion of a course which

leads to a post-graduate degree requires one year's residence at the College, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the Faculty.

The candidate must also present to the Faculty a satisfactory thesis showing independent investigation upon some subject pertaining to their course, and must pass an examination at the close of each term on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the Faculty.

The subject of the thesis must be submitted to the Faculty for approval prior to January 1st, and the thesis be given to the professor by April 1st.

Applicants for post-graduate degrees are, by order of the Trustees, permitted to matriculate without payment of fees.

They are subject to the general regulations as other students, but are exempt from all military duty.

Resident graduates that are not candidates for a degree, are permitted to matriculate and prosecute the studies in any department of the College, without payment of regular fees.

The following courses are prescribed for the degrees named:

Mining Engineer.—Students who have received the degree of B. Sc. in engineering, civil, or electrical and mechanical, or who have prosecuted an equivalent course of study, can enter upon a special course of mining engineering, which includes the following subjects of study:

Industrial Chemistry, Analytical Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, with practical work in the field, Mining Machinery with the applications of steam and electricity to the various operations connected with the exploitation of mines.

The student, if a candidate for a degree, will also be required to prosecute the necessary studies in that course of engineering in which he has not graduated.

This course of study will be under the charge of the professors of geology, chemistry, civil and electrical and mechanical engineering.

Civil Engineer.—Civil Engineering, Mathematics, Analytical Mechanics.

Electrical and Mechanical Engineer.—Electrical Engineering, Mechanical Engineering.

Pharmaceutical Chemist.—Pharmacy and Chemistry.

Master of Science.—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

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SPECIAL ONE-YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of scientific agriculture.

PHOTOGRAPHY.

During the session there will be given by Professor Mell a course of twelve lectures on photography. This course will be elective, and the instruction will be open to any student that may desire to learn how to make pictures. It will be necessary for each student to provide himself with an outfit that will cost from $11.50 to $16.00.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this College, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CHEMISTRY.
II. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.
III. AGRICULTURE.
IV. BOTANY.
V. MINERALOGY.
VI. BIOLOGY.
VII. TECHNICAL DRAWING.
VIII. MECHANIC ARTS.
IX. PHYSICS.
X. ELECTRICAL ENGINEERING.
XI. MECHANICAL ENGINEERING.
XII. PHYSIOLOGY AND VETERINARY SCIENCE.
XIII. PHARMACY.

NOTE.—Special work in English or History may be taken by students in the general course as a substitute for laboratory work.

COLLEGE GYMNASIUM AND ATHLETIC FIELD.

The gymnasium is situated at the west end of the athletic and drill grounds, and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures.

It is equipped with Spalding's gymnasium apparatus and is open to all students at stated hours, under the care of an officer.

The athletic field has a quarter-mile cinder track and ample space for football, baseball, and general athletics.

DISCIPLINE.

The government of the College is administered by the President and Faculty, in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study and punctuality in attendance on recitations and all other duties, are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using, or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainment, or game, without previously obtaining the consent of the Faculty.

No cadet will be permitted, without the approval of his parent or guardian, to take part in a public game of football; nor will permission be given in any instance to a student deficient in his studies.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This Association is regularly organized and has a well furnished room on the first floor of the College building set apart for its exclusive use. Through its weekly meetings it exerts a wholesome Christian influence among the students of the College.

Students are advised to unite with the Association when they enter College.

The following are the officers:

N. C. SMITH, President.
W. S. GARNER, Vice-President.
H. C. RAY, Corresponding Secretary.
J. W. KING, Recording Secretary.
J. M. ATKINSON, Treasurer.

LOCATION.

The College is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide water. By statute of the State, the sale of spirituous liquors and keeping saloons of any kind are forbidden.

BOARDING.

The College has no barracks or dormitories, and the students board with families in the town of Auburn and thus enjoy all the protecting and beneficial influence of the family circle.

I.—COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
3. Drawing.	3. Drawing	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Physiology.	2. Physiology.	2. Physiology.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
4. Botany (Lab'y).	4. Botany (Lab'y).	4. Botany (Lab'y).
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy(c).	2. Political Economy.
2. Mental Science (d).	2. Mental Science (d).	2. Mental Science (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
5. Biology.	5. Biology.	5. Biology.
2. Agricultur'l Ch'm'try.	2. Agricultur'l Ch'm'try.	2. Agricultur'l Ch'm'try.
1. Military Science.	1. Military Science.	2. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.

(a) Begins March 1st. (b) Also Practical Agriculture.
(c) Begins Feb. 15th. (d) German may be substituted.

II.—COURSE IN CIVIL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture (b)	2. Agriculture (b).	2. Agriculture (b).
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French, or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y, Mech. Arts (c).	6. Lab'y, Mech. Arts (c).	6. Lab'y, Mech. Arts (c).
1. Field Work, Engin'g.	2. Field Work, Engin'g.	2. Field Work, Engin'g.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature(d)	2. Political Economy(d).	2. Political Economy(d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.

(a) Begins March 1st.

(b) For Agriculture may be substituted Physical Laboratory.

(c) Or Mineralogy.

(d) For Eng. Lit. and Pol. Econ. may be substituted French or German.

5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
4. Mech. Eng., Lab'y.	4. Mech. Eng., Lab'y.	4. Mech. Eng., Lab'y.
Field Work, Engin'g.	Field Work, Engin'g.	Field Work, Engin'g

III.—COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

In freshman and sophomore classes the same studies are prescribed as in Course II in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French, or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
4. Electrical Engin'g.	4. Electrical Engin'g.	4. Electrical Engin'g.
3. Mech. Engineering.	3. Mech. Engineering.	3. Mech. Engineering.
4. Mechanical Drawing.	4 Mechanical Drawing.	4. Mechanical Drawing.
4. Electrical Lab'y.	4. Electrical Lab'y.	4. Electrical Lab'y.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. Eng. Literature (a).	2. Political Economy (a).	2. Political Economy (a).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Electrical Engin'g.	5. Electrical Engin'g.	5. Electrical Engin'g.
5. Mech. Engineering.	5. Mech. Engineering.	5. Mech. Engineering.
2. Electrical Designing.	2. Electrical Designing.	2. Electrical Designing.
6. Electrical Lab'y.	6. Electrical Lab'y.	6. Electrical Lab'y.
4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.
1. Military Science.	1. Military Science.	1. Military Science.

(a) French or German may be substituted.

IV.—GENERAL COURSE.

The numerals opposite the subjects indicate the numbers of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
3. Latin.	3. Latin.	3. Latin.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y Work (b).	6. Lab'y Work (b).	6. Lab'y Work (b).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy (c).	2. Political Economy.
2. Mental Science.	2. Mental Science	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science.	1. Military Science.
6. Lab'y Work (b).	6. Lab'y Work (b).	6 Lab'y Work (b).

(a) Begins March 1st.

(b) The student may elect the laboratory of any department for which he may be qualified.

(c) Begins February 15th.

V.—COURSE IN PHARMACY.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art. Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany. (a)
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. Physics.	3. Physics.	3. Physics.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Botanical Lab'y.	4. Botanical Lab'y.	4. Botanical Lab'y.
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
9. Pharmaceutical Lab.	9. Pharmaceutical Lab.	9. Pharmaceutical Lab.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Biology.	5. Biology.	5. Biology.
7. Toxicology.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Pharmacy.	4. Pharmacy.	4. Pharmacy.
9. Pharmaceutical Lab.	9. Pharmaceutical Lab.	9. Pharmaceutical Lab.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Science.	1. Military Science.	1. Military Science.
3. Materia Medica.	3. Materia Medica.	3. Bacteriology.

(a) Begins March 1st.

VI.—TWO-YEAR COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	5. Drawing.	3 Drawing.
12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

VII.—TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5 English.	5 English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agricult're.	2. Practical Agricult're.	2. Practical Agricult're.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
4. Agriculture.	4. Agriculture.	4. Agriculture.
2. Physiology.	2. Physiology.	2. Physiology.
2. Veterinary Science.	2. Veterinary Science.	2 Veterinary Science.
12. Practical Agricult're.	12. Practical Agricult're.	12. Practical Agricult're.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SCHEDULE OF EXERCISES.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
I. 8–9	4. Algebra. 3. Latin. 1. and 2 Drawing. 1. Elec. Engine'r'g. 2. Mec. Engine'r'g. 1. Biology. 1. German.	3. Physiology. 4. Geometry. 3. Latin. 2. German. 1 and 2 Drawing. 2. Botany. 1. Elec. Engine'r'g 2. Mec. Engine'r'g 1. Mental Science.	4. Algebra. 3. Latin. 1 and 2 Drawing. 1. Vet. Science. 1. Elec Engine'r'g. 1. German.	4. Geometry. 3. Latin. 2. German. 1 and 2 Drawing. 2. Botany. 1. Mental Science. 1. Elec. Engin'r'g	4. Algebra. 3. Latin. 1 and 2 Drawing. 1. Veterinary Sci. 1. Elec. Engine'r'g 1. German.	Exercises in Elocution.
II. 9–10	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2 Latin. 1. Calculus. 1. Biology. 2. Elec Engine'r'g.	4. History. 3. Agriculture. 2 Civ. Engineer'g. 2. Botany. 1. Physics. 2. Elec. Engine'r'g	4. English. 3. Chemistry. 2. Civ. Engineer'g 2. Latin. 1. Calculus. 2. Vet. Science. 2. Elec. Engine'r'g	4. History. 3. Agriculture. 2. Civ. Engine'r'g. 2. Botany, 1. Physics. 2. Elec. Engine'r'g	4. English. 3. Chemistry. 2. Civ. Engine'r'g. 2. Latin. 1. Calculus. 2. Mech. Engin'r'g 2. Vet. Science.	Military Drill.
III. 10–11	3. English. 2. Physics. 1. Civ. Engine'r'g. 1. Biology. 1. Latin. 1. Mec. Engine'r'g.	3. History (1, 2). 3. Botany (2, 3). 1. Biology. 1. Civ. Engineeri'g 4. English. 1. Mec. Engine'r'g 2. French. 2. Mech. Drawing.	3. English. 2. Physics. 1. Latin. 1 Civ. Engineer'g. 1. Biology. 1. Mech. Engin'r'g	3. History ((1, 2). 3. Botany (2, 3). 1. Civ. Engineer'g. 4. English. 1. Mech. Engin'r'g 2. French.	3. English. 2. Physics. 1. Civ. Engineer'g. 4. History (3). 1. Mech. Engin'r'g	Mechanic Arts. Chemical Laboratory. Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.

SCHEDULE OF EXERCISES—Continued.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
IV.	4. Physics (1, 2).	4. Latin. 3. Drawing.	4. Physics (1, 2). 4. Latin (3). 3. History (1, 2).	4. Latin.	4. Physics (1, 2).	
11–12	4. Agriculture (3) 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. English (1, 2). 1. Pol. Econ (2, 3) 4. Mechanic Arts.	2. Agriculture. 2. Mathematics. 1. Chemistry. 1. French.	3. Botany (2, 3). 2. Mathematics. 2. Chemistry. 1. English (1, 2). 1. Political Economy (2, 3). 4 Mechanic Arts.	2. Agriculture. 2. Mathematics. 1. Chemistry. 3. Physiology. 1. French.	4. Agriculture (3). 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. Military Science 4. Mechanic Arts.	3. Mechanic Arts. Chemical Laboratory. Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.
V.	4. Drawing. 3. Mathematics. 2. English. 4. Mechanic Arts.	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 4. Mechanic Arts.	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 4. Mechanic Arts.	3. Mechanic Arts. Chemical Laboratory.
12–1	1. Elec. Designi'g. 1. French.		2. German. 1. Elec. Designing. 2. Anal. Chemist'y.		1. Elec. Designing 2. Milit'ry Tactics.	Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.
P. M.	4. Mechanic Arts.	3. Mechanic Arts. 2. Mineralogy Laboratory.	4. Mechanic Arts	3. Mechanic Arts. 2. Mineralogy Laboratory.	4. Mechanic Arts.	
VI, VII.	3. Field Work, Agr.	Military Drill (*).	3. Field Work, Agr.	Military Drill (*).	3. Field W'rk Agr.	
2–4	1 & 2 Laboratory, Chemistry. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Elec. Lab. Work. Physical Labor'y.	1. Mech. Lab'tory. Elec. Lab'y Work. 1 and 2 History.	1 & 2 Laboratory, Chem. 1 & 2 Field W'rk, Engineering. 1 & 2 Mach. Work. Ex'cis. in Elocut'n Elec. Lab. Work. Physical Labor'y.	1. Mech. Labor'y. Elec. Lab'y Work. 1 and 2 History.	2. French. 1 & 2 Lab. Chem. 1 & 2 Field W'rk, Engineering. 1 & 2 Mach. W'rk. Ex'cis. in Elocut'n Elec. Lab. Work. Physical Labor'y.	

Chapel services daily at 7:45 a. m.
Numbers prefixed denote classes—1 denotes senior, 2 junior, etc. Numbers affixed—(1), (2), (3),—denote terms.
*From 4:30 to 5:30 p. m.

DEPARTMENTS OF INSTRUCTION.

PHYSICS AND ASTRONOMY.

PRESIDENT BROUN.

PROFESSOR McKISSICK.

The instruction is given by recitations from text-books and lectures, illustrated by experiments. The first part of the course is occupied with elementary rational mechanics, treated graphically.

This is followed by a full discussion of molecular mechanics; while due prominence is given to principles, frequent reference is made to the applications of science.

The studies of the junior class include the properties of matter, units of measure, force, work, energy, kinematics, kinetics, mechanic powers, friction, pendulum, molecular forces of solids, liquids and gases, theory of undulations, heat, electricity, magnetism, etc.

The studies of the senior class include optics and astronomy.

Post-graduate Course. This includes the study of analytical mechanics, and requires a knowledge of differential and integral calculus.

PHYSICAL LABORATORY.

INSTRUCTOR H. H. KYSER.

The laboratory work includes courses for the sophomore and freshman classes, and is so arranged as to begin with a study of the systems and units of measurements and to conclude with simple experiments in heat.

The student is required to ascertain experimentally various physical laws, hence in all exercises there is something to measure. From hese measurements he is required to find the law connecting the quantities involved. Results of experiments are to be entered, in

tabular form, together with methods. diagrams, etc., in a laboratory record-book, which each student is required to prepare. At the close of each week this book is criticised and graded according to its accuracy and neatness.

FRESHMAN COURSE.

First Term. (*a*) Elementary physics (mechanics and heat).
Second Term. (*b*) Elementary graphical statics (continued in sophomore year).
Third Term. (*c*) Systems and units of measurements.
(*d*) Simple measurements of length, surface, volume and weight.

SOPHOMORE COURSE.

First Term. (*a*) Simple measurements and designing verniers and micrometers.
(*b*) Elementary graphical statics. (*c*) Forces, moments and work.
Second Term. (*d*) Simple machines and friction (determining mechanical advantages, loss, efficiency, law, etc).
(*e*) Pendulum and gravity. (*f*) Elasticity.
Third Term. (*g*) Liquids. (*h*) Density and specific gravity. (*i*) Gases. (*j*) Heat.

The laboratory is equipped with instruments of foreign and American manufacture, such as verniers, micrometers, cathetometers, a horizontal comparator, a Kater's reversion pendulum, balances, etc., and with all apparatus necessary to perform from 10 to 20 experiments under each of the above named groups.

MATHEMATICS.

PROFESSOR SMITH.

The general course for the first two years embraces the *first year*, algebra, through logarithms and geometry, six books; *second year*, algebra, solid geometry, plane and spherical trigonometry, surveying, mensuration.

Two objects are sought to be attained: first, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given to the sophomore class in farm, town and government land surveying, dividing land, mapping, plotting, and computing areas, etc.; also in the theory, adjustment and use of instruments.

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BOTANICAL LABORATORY.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

Mensuration includes an extended course in measurements of heights and distances, plane, rectilinear, and curvilinear figures, surfaces and volumes.

The completion of this course, common to all students, lays the foundation for the pure and applied mathematics of the mechanical and engineering courses. Analytical geometry, descriptive geometry, and calculus are pursued in the mechanical and engineering courses. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of the principles and formulas.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Wentworth's Trigonometry and Surveying, Wentworth's Analytical Geometry, Faunce's Descriptive Geometry, Nicholson's Calculus, Johnson's Differential Equations, Osborne's Problems, Peck's Determinants.

GEOLOGY AND BOTANY.

PROFESSOR MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other natural deposits of minerals in the State. Mineral springs, the origin of ore deposits, and the geological relations of soils are carefully studied.

There is also a course of advanced work in practical geology for post-graduate students. This subject is pursued by applicants for the degrees of master of science and mining engineer.

The junior class in civil engineering studies mineralogy

through the entire session. This work consists of a thorough course in blow-pipe analysis of the ordinary minerals, and lectures upon crystallography, with instruction how to measure crystals and determine the physical constants of minerals. An effort is made to familiarize the student with all the economic ores and the rocks entering into the composition of soils.

Botany.—The students of the sophomore class begin the study of botany the first of March, and continue it through the session. Analytical work is made an important feature. This class is provided with plants from the fields, and taught how to determine their specific names. The work is sufficiently exhaustive to enable the student, after completing the course, to name any of the ordinary weeds and grasses that he will encounter in this section.

In the junior class, in the course of chemistry and agriculture, two terms are devoted to systematic and structural botany, and to advanced laboratory work with the microscope in the preparation of specimens showing plant structure; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microscopes of the most improved patterns, and all necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students.

The third term is devoted to the study of the physiology of plants in order to understand the functions of the various organs after completion of the work in the histological laboratory.

FACILITIES FOR WORK.

Geology.—The department is equipped with models of Mount Shasta, the earthquake of 1887 in Japan, glass crystals for teaching crystallography; charts and maps of the geology of America and Europe; Colt's lantern complete, with oil, oxy-hydrogen and automatic electric lamps; a large assortment of fine lantern slides representing geological formations in this country and abroad; well equipped mineralogical laboratory for thirty students, supplied with a collection of representative minerals; and models of crystals.

Botany.—The facilities for teaching this subject are as follows:

Auzoux's clastic models of seeds and flowers; a large collection of pressed plants of Alabama and other sections, mounted and catalogued. There is also a laboratory for practical work in botany equipped with slate-topped tables for twenty students; dissecting and compound microscopes by Zeiss, Leitz, and Bausch & Lomb; projection microscopic apparatus; microtomes by King and Bausch & Lomb; all the necessary glass ware and smaller dissecting instruments required in a well equipped laboratory. The Zeiss compound microscope used by the professor for experiment work in connection with the station is supplied with Abbe's illuminating apparatus, slide changers, Abbe's camera lucida polarizers, apochromatic objectives (16 mm, 8 mm, 4 mm, and homogeneous immersion), oculars (2, 3, 8, 12, 18, and photographic), eye-piece with micrometer. This laboratory is well lighted with gas and electricity and with a good exposure for ample sunlight.

In connection with the department there is a photographic dark room and an excellent photographic outfit consisting of cameras varying in size from 4 x 5 to 6½ x 8½ inches; Bausch & Lomb's professional photo-micro camera extending to eight feet; Zeiss's anastigmat photographic lens, 6½ x 8½, fitted with Bausch & Lomb's diaphragm shutter, and Zeiss's wide angle lens, 6½ x 8½, all mounted in aluminium; Clark's lens fitted with diaphragm shutter; Darlot lens, 4 x 5; the accessory apparatus and chemicals required for first class work in photography.

The students have access to the botanical garden where experiments in grass culture and many other plants of interest to the farmer are conducted by the professor.

TEXT-BOOKS.

LeConte's Geology, Williams's Practical Geology, Tarr's Economic Geology, Dana's Mineralogy, Gray's Botany, Nelson's Herbarium and Plant Descriptions, Laboratory Guide, and notes of lectures.

CIVIL ENGINEERING AND DRAWING.

PROFESSOR LANE.

CIVIL ENGINEERING.

The special studies in this department begin in the junior class, and require a good knowledge of algebra, geometry, trigonometry, and analytical mechanics. They are as follows:

Junior Class—Simple, compound, reversed and parabolic curves, turnouts and crossings, leveling, gradients, setting slope stakes, etc.

Special attention will be paid in this class to the location, reconstruction, drainage and maintenance of country roads; and the various pavements and foundations for the same.

Senior Class—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought-iron, steel and other metals; limes, cements, mortars, and their manufacture; paints and other preservatives; classification of strains and a general mathematical discussion of same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds, their construction and strains determined mathematically and graphically; common roads, their coverings, location and construction; location and construction of railroads; navigable, irrigation, and drainage canals; river and sea-coast improvements.

Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior Class.—Henck's Field Book for Railway Engineers and Byrne's Highway Construction.

Senior Class.—Wheeler's Civil Engineering and Von Ott's Graphic Statics.

DRAWING.

All of the students of the freshman and sophomore classes are required to take drawing; but only the students in civil engineering in the junior and senior classes.

The freshman class is taught linear and free-hand drawing. The sophomore class is instructed in the principles of orthographic and isometric projections, shades and shadows, perspective and tinting. In the junior class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and tinting; also sketches of tools and machines, plans and elevations and cross-sec-

tions of buildings, and blue prints. The senior class makes topographical drawings, and drawings of machines, roofs, brides, etc., to different scales, and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Freshman Class.—Kitchener's Geometrical Note Book, Thorne's Junior Course in Mechanical Drawing, and Davidson's Model Drawing.

Sophomore Class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior Class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, Plates belonging to the College, Keuffel & Esser's Alphabet.

Senior Class.—French, English and American plates belonging to the College, Keuffel & Esser's Alphabet.

ENGLISH AND POLITICAL ECONOMY.

PROFESSOR THACH.

OBJECTS AND METHODS.

In this department the students pursue a systematic course in the English language and literature.

Language is the avenue of approach to all knowledge; the interpretation of words is the fundamental process in education of whatsoever kind. A full course of English is, therefore, considered especially important in the technical courses of study that do not include the ancient classics. Accordingly, the course of English is continued throughout the four years of the College curriculum, three hours a week, and is made obligatory upon all students, with the exception of those pursuing the first two years of the course in Latin. In this extended drill in the grammar and literature of the English language, the endeavor is made to afford a training somewhat equivalent to the ordinary course in the classical languages.

In view of the ill preparation in languages, especially in their mother tongue, exhibited by many of the candidates for admission to the freshman class, it is deemed advisable, for the sake of honest work, to devote a portion of the first year to grounding such students in the principles of grammar.

Especial attention is given to the study of the writings, themselves, of leading English authors, since direct contact with literature is considered more profitable than information merely *about* literature.

All students before classed as regular in any course leading to a degree must conform to all the requirements in English for admission as set forth on page 32.

For requirements as to thesis and as to proficiency in English for certificates and degrees see page 38.

Declamation and themes (or orations) are required of *all regular* students. For details see below.

COURSE OF STUDY.

Freshman Class.—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied; study of American authors: Irving, Hawthorne, Holmes, Poe, Bryant, Longfellow.

Morris's English Grammar, Lockwood's Rhetoric, Kellogg & Reed's English Language.

Sophomore Class.—Three hours a week; study of style, analysis of selections of prose and poetry, frequent essays on historic and literary themes.

Genung's Rhetoric, Genung's Rhetorical Analysis, Syle's From Milton to Tennyson.

Junior class.—Three hours a week; lectures on the history of English literature, critical study of English classics, essays.

Pancoast's History of English Literature; Palgrave's Golden Treasury; Macaulay, Carlyle, DeQuincey, etc.

Senior class.—Two hours a week, first term. Principles of Criticism, Shakespeare's Julius Cæsar, Hamlet, Dowden's Shakespeare's, etc.

THEMES AND ORATIONS.

Theory without practice is as fruitless in the study of English as in any other department of study. Practical work is indispensable to the successful teaching of English.

Besides numerous brief papers, illustrative of the subject matter of the text-books, set themes or orations are *required of all students:*—For the freshman class, *ten* themes a year; *ten* for the sophomore; for the senior and junior classes, *three* orations each.

DECLAMATION.

The old practice of committing pieces to memory for "speaking" is cultivated as a means, both of training in the art of thinking on the feet, and of storing the mind with the diction of finished specimens of English style.

The sophomore class is heard weekly throughout the year in sections of ten, once for an hour and a half in rehearsal, afterwards in the study hall before the body of students.

The senior and junior classes also deliver their orations in public.

PHILOSOPHY AND POLITICAL ECONOMY.

The entire senior class pursues the study of intellectual science, twice a week, through the year; and political economy twice a week, during the last two terms. The instruction in this department is by lectures in combination with text-books.

Intellectual Science.—Psychology defined. Value in relation to moral culture, education, and Natural Sciences. The relations of the soul to matter. The arguments of the Materialist. Counter arguments. The Faculties of the Soul. The nature of Consciousness. Sense perception. Fancy. Imagination. Nature of Conceptions. Language. Judgment. Reasoning. Deduction Induction, etc. *Porter's Intellectual Science.*

Political Economy.—Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades-union; co-operation; *money;* credit; functions of government; taxation; tariff; education, etc. *Lectures by Professor.*

A Post-graduate Course has also been established in English. The following courses have been given:

(1) *Shakespeare.*—Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Part I, Richard III, King John.

(2) *Dryden—Poetical Works* (Christie); *Essay of Dramatic Poesy* (Thomas Arnold); *Essay on Satire*, etc., (Yonge); Saintsbury's *Life of Dryden.*

Pope.—Poetical Works (Ward); *Satires* (Pattison); Stephen's *Life of Pope*, Gosse's *From Shakespeare to Pope* and *18th Century Literature.*

(3) *English Literature of the Eighteenth Century:* Addison, Pope, Gray, Goldsmith, Burns, Cowper, Burke.

(4) *American Literature:* Longfellow, Lowell, Poe.

CHEMISTRY.

PROFESSOR B. B. ROSS.

Instruction in this department embraces—

1. A course of lectures in general chemistry.
2. A course of lectures in industrial chemistry.
3. A course of lectures in agricultural chemistry.
4. Systematic laboratory work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in general chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and most approved instruments necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cooke's Chemical Philosophy, Chemical Journals.

2. The lectures on industrial chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the reduction of ores, the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams.



CHEMICAL LABORATORY (INTERIOR).

REFERENCE BOOKS.

Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Percy's Metallurgy, Sadtler's Industrial Organic Chemistry.

3. Course in agricultural chemistry: This consists of lectures on chemistry in its applications to agriculture (two per week), and includes a thorough discussion of the origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist.

REFERENCE BOOKS.

Johnson's How Crops Grow and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

4. The course of systematic laboratory work: This course of practical work in the laboratory is carried on in connection with each course of lectures, and embraces the practical operations of chemical analysis and synthesis, being varied somewhat to suit the individual object of the student.

The laboratories, which are open from 9 A. M. to 5 P. M., during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation, in the qualitative and quantitative analysis of soils, fertilizers, feed stuffs, sugar products, minerals, mineral waters, technical products, etc., and in the method of prosecuting chemical researches. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles, and the common re-agents and apparatus used in qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

In addition to the analytical work above described, it is designed to give during the session a short course in electro-plating. Practical instruction in the electro-deposition of nickel, silver, gold, etc., upon other metals will be given, and, in addition, the application of electrolysis to chemical analysis will be studied both theoretically and practically.

BOOKS USED.

In qualitative analysis—Jones, Fresenius, Plattner.

In quantitative analysis—Fresenius, Sutton, Rose, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying.

In agricultural chemical analysis—Official methods of the Association of Agricultural Chemists, Wiley's Principles and Practice of Agricultural Analysis.

CHEMICAL LABORATORY.

[For description of the building see page 14.]

The chemical apparatus recently purchased for the laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, four short-arm Becker balances of latest pattern, Bunsen spectroscope, Zeiss microscope, and other instruments for delicate and accurate work.

HISTORY AND LATIN.

PROFESSOR PETRIE.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements and the reciprocal influences of men and circumstances. Frequent use is made

of diagrams, photographs, charts and maps, with which the department is well equipped. Constant practice in map drawing is insisted on in order to give precision to the geographical knowledge required. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library.

In the freshman class, the subjects studied are the United States, Alabama, and England. The first term (two hours per week) is devoted to the history and government of the United States, the second term (two hours per week) to Alabama, and the third term (three hours per week) to the history of England.

In the sophomore class (three hours per week until March) the subject studied is general European history.

In the junior and senior classes opportunity for special historical work is given to those students of the general course who may elect it instead of laboratory work. The work in 1898-99 will be in American and English history, social, political and economic.

The work will be partly by lectures; but students will also investigate in the library under the direction of the professor topics connected with the lectures, and will report to the class the result of research. These reports will be made the basis of general discussion. A series of lectures will be given from time to time on current foreign events, and on important points in recent history.

TEXT-BOOKS.

Freshman class.—Cooper, Estill & Lemmon's History of the United States, Thorpe & McCorvey's Civil Government in the United States and Alabama, Montgomery's English History.

Sophomore class.—Myers's General History.

Junior and Senior classes.—Hart's Formation of the Union, Woodrow Wilson's Division and Reunion, Oman's History of England.

LATIN.

The objects kept in view in this department are: an accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put into Latin both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the artistic value of his writings is carefully discussed and frequent comparisons are made with modern authors.

For the benefit of students who do not study the Latin language a series of popular lectures will be given upon the great Latin writers.

TEXT-BOOKS.

Freshman Class.—Grammar, Exercises, Nepos, Sallust.

Sophomore Class.—Cicero, Selections from Livy, Allen & Greenough's Grammar, Exercises.

Junior Class.—Virgil, Horace, A. & G.'s Grammar, Exercises, Allen's History of Rome, Wilkins's Roman Antiquities.

Senior Class.—Selections from Latin Authors, Wilkins's Latin Literature, Ancient Classics for English Readers, Exercises.

MODERN LANGUAGES.

PROFESSOR C. H. ROSS.

The following regular courses are given in French and German:

French—First Year: Three recitations a week. During this year the principal object is to acquire a knowledge of the elements of grammar and a correct pronunciation, together with facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year, almost the same line of work is pursued as that begun in the previous year. More difficult and varied French is read, and instruction is given upon the laws of grammar,



ELECTRICAL BUILDING.

the construction of the language, and the history of the literature. Special attention is given to sight translation.

German—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

A post-graduate course in French has been offered, consisting of a study of the life and works of Victor Hugo and Alexandre Dumas, Sr.

TEXT-BOOKS.

FRENCH—*First Year:* Keetels' Elementary French Grammar; French Fairy Tales, Jules Verne's Michel Strogoff.

Second Year: Hugo's Hernani, Mérimée's Colomba; French Prose Composition.

Post-graduate Course: Les Misérables, Les Trois Mousquetaires; various books and articles on Hugo and Dumas.

GERMAN—*First Year:* Harris's German Lessons; Super's Elementary German Reader, Zschokke's Der Zerbrochene Krug.

Second Year: Goold's Tales from Hauff, Goethe's Hermann und Dorothea; Harris's German Composition.

ELECTRICAL ENGINEERING.

PROFESSOR MCKISSICK.

The students in this course will study English, French, or German, physics, mathematics, etc., as now prescribed for the course of civil engineering in the junior and senior years; and, in addition thereto, will prosecute their studies in electricity and mechanics, as herein prescribed.

JUNIOR YEAR.

Four hours a week for the entire session are devoted to the studies of the principles of electricity and magnetism. The student is made familiar with the theoretical principles by experiments, illustrations, recitations, and lectures.

LABORATORY WORK.—Four hours per week are given to work in the laboratory. This includes management of batteries, construction of instruments, electro-plating, electrical measurements, verification of the principles upon which the measurements of current, electromotive force and resistance are based, etc.

TEXT-BOOKS.

Ayrton's Practical Electricity, Stewart and Gee's Practical Physics, Nichol's Laboratory Manual, Vol. I.

SENIOR YEAR.

In the senior year five hours per week are devoted to theoretical instruction in electricity and magnetism, supplemented by a course of lectures and practical demonstrations on the applications of electricity to lighting, electric railways, electrical transmission of energy, polyphase currents, electrical welding, etc.

Encouragement is offered to advanced students for conducting original investigations, and opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students in connection with their experimental work.

LABORATORY WORK.—Six hours per week are devoted to practical laboratory work, electrical measurements, relation of electrical currents to heat and mechanical work, care and tests of dynamo and motors, calibration of voltmeters, ammeters and watt-meters, electric lighting, management and care of accumulators, energy consumed in lamps, adjustment and care of arc lamps, proper wiring of buildings, the application of electricity to street railways, magnetic measurements, tests of transformers and alternating motors, etc.

DRAWING AND CONSTRUCTION.—Two hours per week in the senior year are devoted to the design and construction of electrical machinery. The student is required to make original designs of dynamos, motors, transformers, etc.

TEXT-BOOKS.

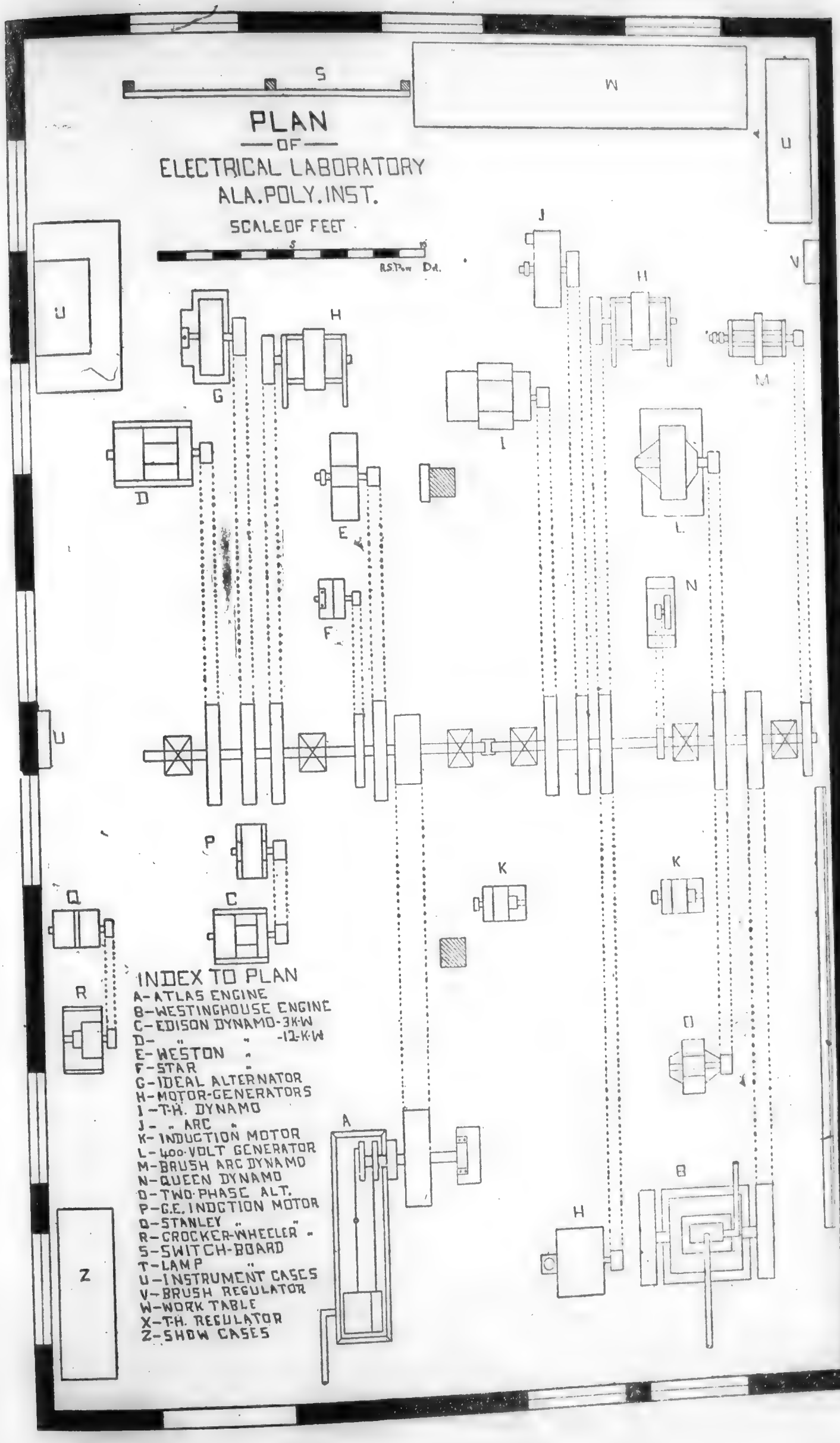
Thompson's Dynamo Electric Machinery, American Street Railways by Hedges, Nichol's Laboratory Manual, Vol. II.

POST-GRADUATE COURSE.

This includes advanced study and laboratory work in alternating currents.

REFERENCE BOOKS.

The Dynamo by Hawkins & Wallace, Alternating Currents by Jackson, Principles of the Transformer by Bedell, Dynamos, Alternators and Transformers by Kapp, Alternating Current Phenomena by Steinmetz.


PLAN
OF
ELECTRICAL LABORATORY
ALA. POLY. INST.
SCALE OF FEET
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INDEX TO PLAN
A-ATLAS ENGINE
B-WESTINGHOUSE ENGINE
C-EDISON DYNAMO-3K-W
D- " " -12-K-W
E-WESTON "
F-STAR "
G-IDEAL ALTERNATOR
H-MOTOR-GENERATORS
I-T-H. DYNAMO
J- " ARC "
K-INDUCTION MOTOR
L-400-VOLT GENERATOR
M-BRUSH ARC DYNAMO
N-QUEEN DYNAMO
O-TWO-PHASE ALT.
P-G.E. INDCTION MOTOR
Q-STANLEY " "
R-CROCKER-WHEELER "
S-SWITCH-BOARD
T-LAMP "
U-INSTRUMENT CASES
V-BRUSH REGULATOR
W-WORK TABLE
X-T-H. REGULATOR
Z-SHOW CASES

EQUIPMENT.

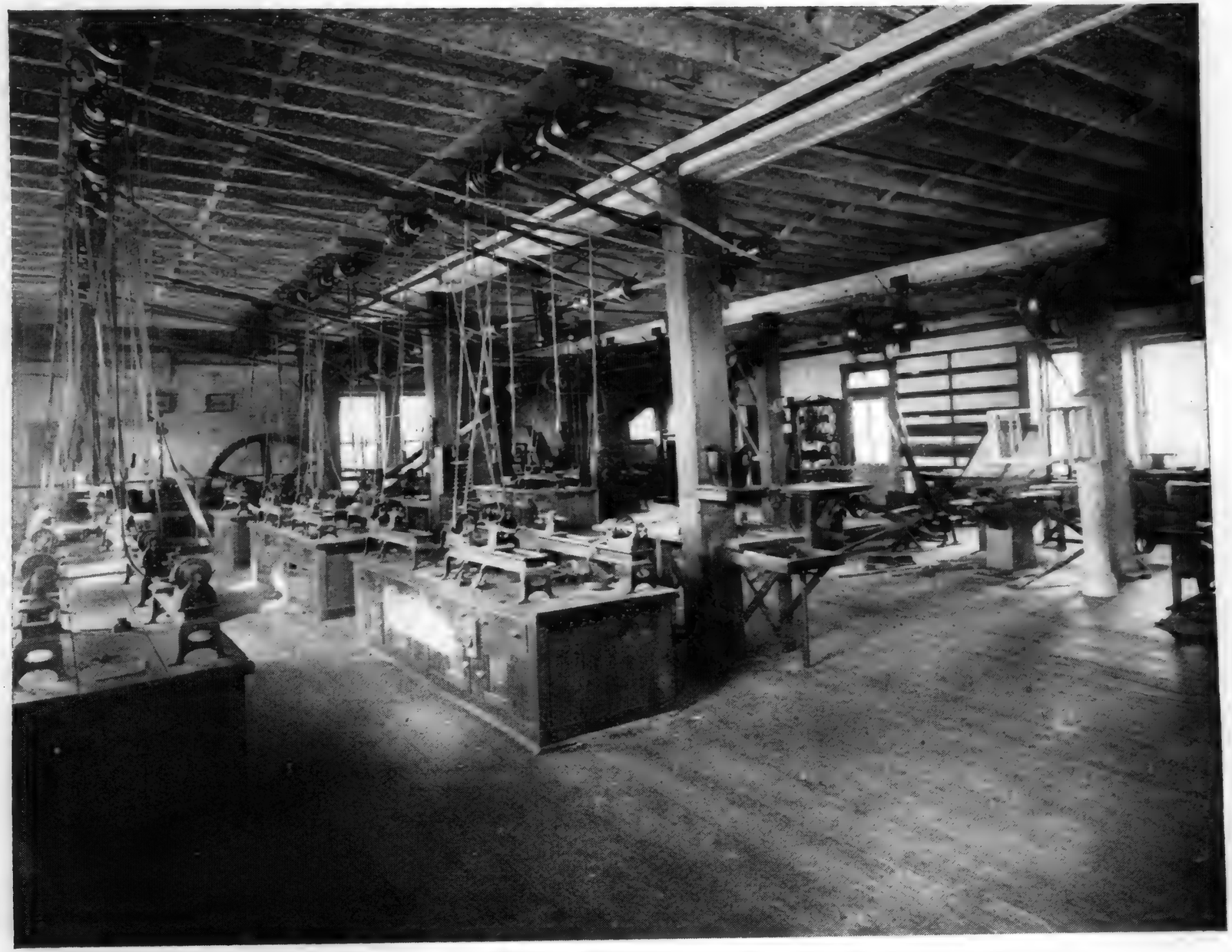
The electrical laboratory has a complete line of batteries, call-bells, annunciators, telegraph sounders, relays, keys, magnets, galvanometers, resistance boxes, electro-plating apparatus, and all apparatus for students in electrical engineering. The equipment comprises many fine instruments of precision: Sir Wm. Thomson's standard 100 ampere balance (either for direct or alternating currents); Sir Wm. Thomson's graded current galvanometer, reading 600 amperes; also, his graded potential galvanometer, reading 600 volts; Weston alternating current voltmeter, Weston direct reading watt-meter, Queen's "Acme" testing set, Kelvin electrostatic voltmeter, Cardew voltmeter (for direct or alternating currents), reading to 150 volts; Weston's standard ammeter and voltmeter, box of resistance coils; Queen's magnetic vane voltmeter, and ammeter, standard micro-farad condenser and Sabine key; Thompson watt-meter, ballistic reflecting galvanometer, mirror galvanometer, Fein ammeter and voltmeter, Ayrton & Perry ammeter, Edison ammeters, Kohl's solenoid ammeter, Wood ammeter, Deprez ammeter, Hartman & Braun voltmeter, D'Arsonval galvanometer, Rowland-D'Arsonval galvanometer, Hughe's induction balance, tasimeter, microphone, telephones, electrolytic apparatus and several mirror and other galvanometers for first year students.

In the dynamo room the following are installed: One Weston 150 volt, 20 ampere dynamo, with rheostat; one Brush 6 arc light dynamo, with regulator and six lamps; one Ideal 5 kilo-watt three phase alternator; one Thomson-Houston 9 arc light dynamo with lamps; one Edison compound wound 12 kilo-watt generator; a Thomson-Houston 110 volt, 75 ampere generator; two street car motors used as either direct or alternating current generators or motors; two polyphase induction motors; one General Electric 5 horse-power induction motor; General Electric 20 horse-power motor; one Stanley induction motor with condensers; Edison 3½ kilo-watt generator; a Crocker-Wheeler one horse-power motor and rheostat, and one bi-phase alternator, and 500 volt generator, made by special students, furnish current to laboratory, and light up the different buildings. A lamp board with a capacity of 210 lamps has been installed and is used for testing purposes.

The dynamos occupy a separate brick building, 50 x 32 feet, and are operated by a 35 horse-power Westinghouse vertical engine, and a 25 horse-power Atlas engine.

This department, being provided with Sir Wm. Thomson's standard electrical instruments for exact measurements, will calibrate, free of expense, any ammeter or voltmeter that may be sent to the College.

An electric motor made by students, supplied with current from a generator at a distance of 3,000 feet, operates a gin, gin press, ensi-



WOOD ROOM.

lage cutter and feed cutter at the experiment station farm. This motor not only subserves a useful purpose in the operation of these machines, but is an excellent illustration of the electric transmission of power.

MECHANICAL ENGINEERING AND MECHANIC ARTS.

PROFESSOR WILMORE.

B. H. CRENSHAW, R. J. TRAMMELL, } ASSISTANTS.

MECHANIC ARTS.

The course in manual training covers three years, as follows: first year, wood-working—carpentry and turning; second year, pattern-making and foundry and forge work—molding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the three lower classes. For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

The power for running the apparatus in this department is derived from a twenty-five horse-power Harris-Corliss automatic engine which is supplied with steam by a thirty horse-power steel horizontal tubular boiler. A steam pump and a heater for the feed water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected.

The equipment for the wood-working shop comprises the following: 30 wood-working benches, each with complete set of carpenter's tools; 24 turning-lathes, 10-inch swing, each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 buzz planer; 1 large pattern-maker's lathe, 16-inch swing; 1 36-inch grindstone. The tool room is supplied with a variety of extra hand-tools for special work, and in addition to the regular carpenter's tools in the benches, each student is supplied with a set of chisels and plane irons with a locker to keep them in and is held responsible for their care and condition.

The equipment for the foundry consists of molding benches for

18 students, each supplied with a complete set of molder's tools; a 28-inch Colliau cupola, with all modern improvements, capable of melting 2,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small molding flasks, a foundry crane, special tools, etc.

The forge shop equipment consists of 16 hand forges of new pattern, each with a set of smith's tools, anvil, etc. The blast for all the forges is supplied by a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a No. 15 Sturtevant exhaust blower draws the smoke from the fires into the smoke-flues and forces it out through the chimney.

The machine department occupies a brick building, 30 x 50 feet, and is equipped with six engine-lathes (screw-cutting), 14-inch swing, 6-foot bed; 2 engine-lathes, 16-inch swing, (one with taper attachment); 1 engine-lathe, 18-inch swing, with compound rest and taper attachment; 1 screw-cutting lathe, 12-inch swing; 1 speed lathe, 10-inch swing; 1 20-inch drill press (power feed); 1 10-inch sensitive drill; 1 15-inch shaper; 1 22-inch x 22 inch x 5 feet planer; 1 universal milling machine; 1 corundum tool grinder (14-inch wheel); 1 bench grinder; 1 post drill press, 14-inch; 1 universal cutter and reamer grinder; 1 Brown & Sharpe universal grinding machine; 1 power hack saw. A part of the room is set apart for vise-work, chipping and filing; and benches for 12 students are provided, each with vise and set of files, chisels, hammers, etc. In the tool-room is to be found a good supply of machinists' tools for general shop use, such as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, with machine for grinding twist drills.

The nature of the work in each department is as follows:

FIRST YEAR.

I. A course of carpentry or hand work covering the first two terms. The lessons include instruction in the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, different kinds of joints, timber-splices, cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work, examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the third term. The lessons comprise, first, nature and use of lathe and tools, plain straight turning caliper work to different diameters and lengths, simple and compound curves, screw plate and chuck work, hollow and spherical turning.

SECOND YEAR.

I. A course in forge work in iron and steel, occupying the first term. The lessons are arranged so that the students, in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

II. A course in pattern-making covering the second term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general molding.

III. A course in molding and casting in iron and brass occupying the third term. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks; core work is also given, and some three part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola, each student in turn taking charge of a melting.

In connection with this second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

THIRD YEAR.

I. A course of chipping and filing, covering the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved surfaces, key-seating, etc.; filing and finishing to line (straight and curved), surface filing and finishing, fitting, slotting, dovetail work, sawing, pin and screw filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron, steel and brass; turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling--both in lathe and drill press,—reaming, boring, screw-cutting in lathe and with taps and dies, planing, slotting, etc., with planer and shaper, milling various forms with the milling machine, including exercises in making taps, reamers, etc., fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals: such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw

threads, etc. During the last term some piece of construction work is given the classes.

All of the work is done from blue prints made by the class in drawing. In the construction work, the student is given a blue print and the material for a certain part. He is then encouraged to study the work and plan the best method of doing it.

MECHANICAL ENGINEERING.

JUNIOR YEAR.

Elementary Mechanics.—Three hours a week for the first term are devoted to this subject. The fundamental laws underlying all mechanical science and the mechanics of liquids, gases and vapors are studied.

Principles of Mechanism.—Three recitations per week during the second and third terms are devoted to this subject.

Under this head machines are analyzed and their elementary combinations of mechanism studied. The communication of motion by gear wheels, belts, cams, screws and link-work, the different ways of obtaining definite velocity ratios and definite changes of velocity, parallel motions and quick return motions as well as the designing of trains of mechanism for various purposes, together with the theoretical forms of teeth for gear wheels to transmit the motion through these trains, are investigated under this subject.

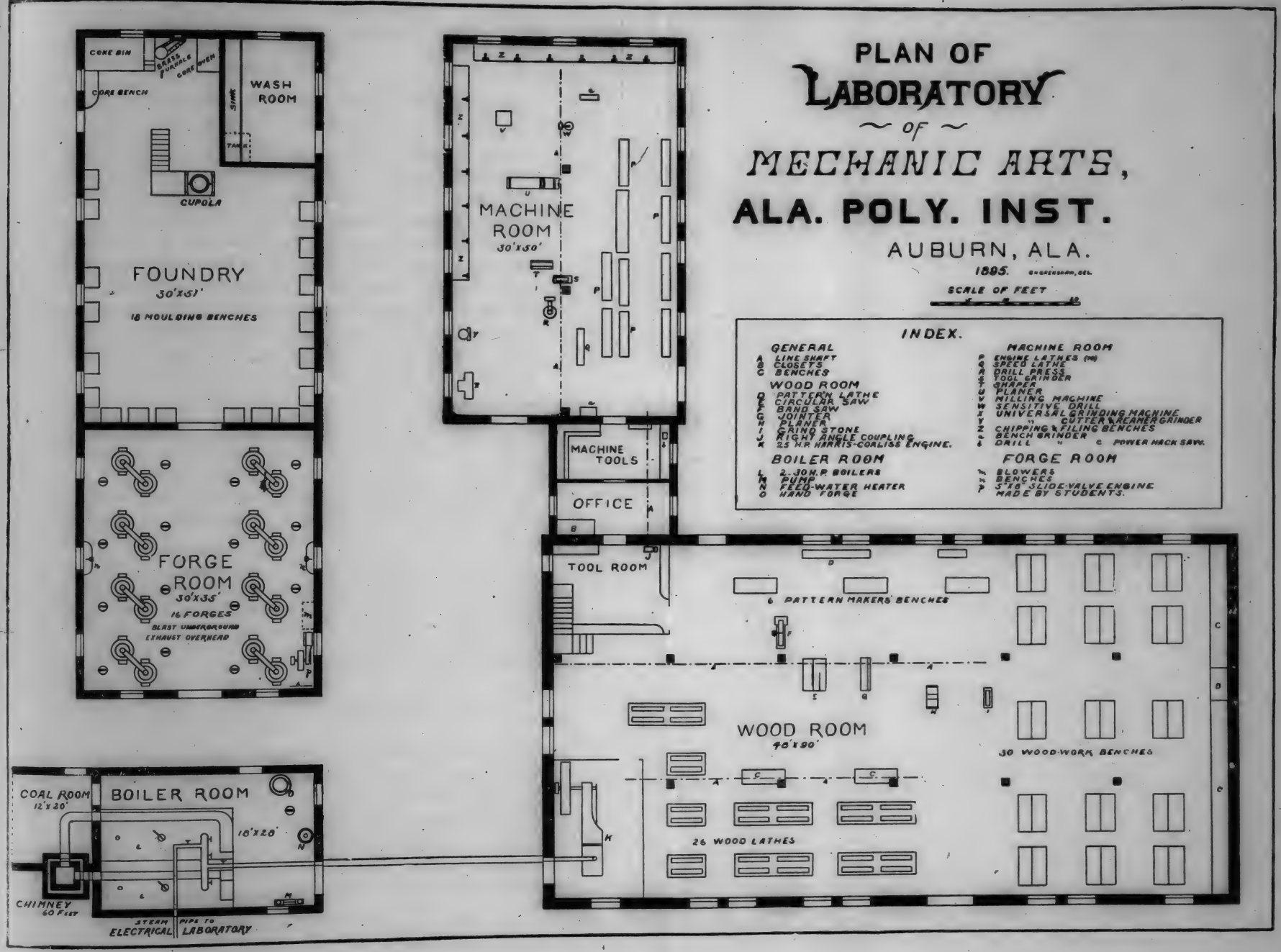
Mechanical Drawing.--During the first term the students make drawing to exact scale, of some of the simpler machines. The student takes his own measurements and makes his own sketches from which to make the finished drawing.

An elementary course of machine design is started at the beginning of the second term and continued till the end of the year. Some comparatively simple machine is selected and studied in all its details. Careful attention is given to the strength of the parts and their mechanical arrangement with reference to facility of manufacture. An actual machine or the working drawings of a machine are obtained, the dimensions compared with those obtained by applying the theoretical formulas, and the causes of variation between the two studied.

Laboratory Work.—The laboratory work will consist of hand work in iron and machine work in iron, as given in the course in mechanic arts in the third year.

TEXT-BOOKS.

Wood's Elementary Mechanics; Stahl and Wood's Elementary Mechanism.


PLAN OF
LABORATORY
OF
MECHANIC ARTS,
ALA. POLY. INST.
AUBURN, ALA.
1895.
SCALE OF FEET
INDEX.
GENERAL
A LINE SHAFT
B CLOSETS
C BENCHES
WOOD ROOM
D PATTERN LATHE
E CIRCULAR SAW
F BAND SAW
G JOINTER
H PLANER
I GRIND STONE
J RIGHT ANGLE COUPLING
K 25 H.P. HARRIS-CORLISS ENGINE.
BOILER ROOM
L 2-30 H.P. BOILERS
M PUMP
N FEED-WATER HEATER
O HAND FORGE
MACHINE ROOM
P ENGINE LATHES (16)
Q SPEED LATHE
R DRILL PRESS
S TOOL GRINDER
T SHAPER
U PLANER
V MILLING MACHINE
W SENSITIVE DRILL
X UNIVERSAL GRINDING MACHINE
Y " CUTTER & REAMER GRINDER
Z CHIPPING & FILING BENCHES
a BENCH GRINDER
b DRILL " c POWER HACK SAW.
FORGE ROOM
M BLOWERS
N BENCHES
P 5"x8" SLIDE-VALVE ENGINE MADE BY STUDENTS.
COKE BIN
BRASS FURNACE
CORE OVEN
CORE BENCH
SINK
WASH ROOM
TANK
CUPOLA
FOUNDRY
30'x51'
18 MOULDING BENCHES
FORGE ROOM
30'x35'
16 FORGES
BLAST UNDERGROUND
EXHAUST OVERHEAD
MACHINE ROOM
30'x50'
MACHINE TOOLS
OFFICE
TOOL ROOM
6 PATTERN MAKERS' BENCHES
WOOD ROOM
40'x90'
30 WOOD-WORK BENCHES
26 WOOD LATHES
COAL ROOM
12'x20'
BOILER ROOM
16'x20'
CHIMNEY
60 FEET
STEAM
ELECTRICAL
PIPE TO
LABORATORY

SENIOR YEAR.

Mechanical Engineering of Power Plants.—The first term five hours per week is given to the study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages and disadvantages of each discussed. Extensive files of manufacturer's catalogues are kept and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work.

Steam Engine.—The second term five hours per week will be given to the study of the theory and efficiency of the steam engine, with discussions of the effects of condensation in cylinder, action of fly-wheels, effects of jacketing, etc. Simple and compound engines, various valves and cut-off motions, and the principal types of modern engines are studied. Special attention is given to the steam engine indicator.

Graphical Statics of Mechanism.—Six weeks of the third term, five hours per week, will be given to the study of this subject. The advantage of graphical over analytical methods is generally recognized, and new applications of the former are constantly being made. By its use, the forces acting in every part of a machine may be determined, both in direction and intensity, without the use of a mathematical formula.

During the remainder of the third term, a series of lectures on mechanical refrigeration and gas engines is given.

Machine Design.—The subject of machine design is made a continuation of the junior course and runs throughout the year, two hours a week. During the first term, the strength and proportions of different joints and fastenings are studied, and problems given for actual solution. During the remainder of the year the time is spent on steam engine design. The results as obtained from standard formulas

are compared with the dimensions as used by the best constructors, and the reasons for variations, if any occur, are studied.

Laboratory Work.—The students are not only taught how to calibrate and use the different instruments, but they are brought in contact with engineering appliances under practical working conditions.

Thoroughness of work is sought rather than the performance of a large number of experiments.

The following course has been arranged:

Calibration of steam gauge; calibration of indicator spring; calibration of thermometer; calibration of scales and balances; calorimeter tests with barrel separating and throttling calorimeters; boiler test with determination of the quality of steam and analysis of flue gas; efficiency test of engine with brake and indicator power measurement; test of hot air pumping engine; efficiency and duty of a steam pump; tensional, compressional and transverse tests of cast iron, wrought iron, steel and wood, in which are observed the limit of elasticity, the ultimate breaking strength and the modulus of elasticity.

This class usually makes a test of some electric plant or mill some time in the last term.

The apparatus for carrying on this work consists of 45 horse-power Imperial cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Deane air pump and circulating pump, of a 25 horse-power Harris-Corliss engine, a 35 horse-power Westinghouse engine, a 25 horse-power Atlas engine, two 9 horse-power engines constructed by students in the shops, a small engine and boiler especially for making efficiency tests, a duplex Deane steam pump, an Ericsson hot air engine, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, pyrometers, scales, a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester for correcting the standard gauge, a 50,000-pound testing machine, and Riehle micrometer extensometer, a Carpenter calorimeter with auxiliary apparatus for determing the heating value of different fuels.

TEXT-BOOKS.

Kretzer's Mechanical Engineering of Power Plants, Holmes's Steam Engine, Sherman-Smith's Graphical Statics of Mechanism; Unwin's Machine Design.

REFERENCE BOOKS.

The library contains a number of standard works on the various subjects studied, and the students are referred to them constantly for more extended treatment of many points that come up in class.

POST-GRADUATE COURSE.

The following course has been arranged and represents the amount of work required. Hydraulics may be substituted for thermodynamics if the members of the class are unanimous in wishing the change. Other substitutions may be made at the option of the professor, provided they represent an equivalent amount of work, and are in the general line of the course selected.

Dynamometers.—This includes dynamometers and the measurement of power. Absorption and transmission dynamometers are studied, with their application and use in testing steam engines.

Valve Gears.—The different forms of valve gears of steam engines are studied, and problems in designing gears are worked out.

Thermodynamics of the Steam Engine.—This subject is studied theoretically and practically, and attempts a complete analysis of the action of steam in an engine.

Laboratory Work.—As much advanced laboratory work will be given as can be arranged with the appliances at hand.

TEXT-BOOKS.

Flather's Dynamometers and Measurement of Power, Spangler's Valve Gears, Peabody's Thermodynamics of the Steam Engine, Merriman's Hydraulics.

AGRICULTURE.

PROFESSOR DUGGAR.

Instruction in agriculture is given by means of lectures, text-books, bulletins of the agricultural experimental stations, and practical work in field, barn, and dairy.

The study of agriculture begins with the freshman class in the third term, and extends through three terms of the sophomore year and two terms of the junior year. The time devoted to this study in the lecture room is two hours per week with each class.

The subjects studied by the freshman class are the breeds of horses, cattle, sheep, and hogs,—their characteristics,

uses, management and adaptability to the South. Practical work in judging live-stock is included in the course.

The first term of the sophomore year is devoted to dairying and to a study of the principles of live-stock breeding. Dairying will be taught by practical work in the dairy,—butter making, determination of fat in milk by the Babcock method, etc.,—as well as by instruction in the lecture room.

In the second term of the sophomore year the following subjects are studied: soils—chemical and physical properties, defects, and means of improvement; the control of water, including means of conserving moisture in times of drought, terracing, underdrainage, and open and hillside ditches; objects and methods of cultivation; agricultural implements; rotation of crops; and improvement of plants by crossing, selection, and culture.

The third term of the sophomore year is devoted to the staple crops produced in Alabama, to forage plants adapted to the South, and to plants valuable for the renovation of soils. The more important crops are treated with reference to varieties, soil and fertilizer requirements, methods of planting and cultivating, and uses.

In the junior year the subjects of feeding animals and of farm management are studied. Among the topics included under the latter heading are different systems of farming and stock growing, farm equipment and buildings, silos and silage, care of farm manures, composting, choice and methods of applying commercial fertilizers for different crops and soils, and economical methods of improving exhausted soils.

In every class the student is encouraged to independent thought on agricultural problems rather than to depend on "rules of thumb," so that he may be prepared to adapt his practice in after years to changed conditions of soil, climate, capital, market, etc. The successful farmer must be a thinker rather than a blind follower of inflexible rules.

The effort is made to keep before the student the difference between the widely applicable principles on which every rational sys-



LABORATORY OF BIOLOGY.

tem of farming rests and the details that vary with changing conditions. The conditions of soil, climate, etc., prevailing in different parts of Alabama are kept constantly in view.

As far as limited time allows, attention is directed to agricultural literature now accumulaiing so rapidly in this and in foreign countries, to the end that in future years the student may know where and how to seek the information that he may need.

REFERENCE BOOKS.

Horses, Cattle, Sheep, and Swine, by Curtis; Milk and its Products, by Wing; Dairyman's Manual, by Stewart; Soils and Crops of the Farm, by Morrow & Hunt; Muir's Agriculture; Corn Culture, by Plumb; The Soil, by King; Manures and the Principles of Manuring, by Aikman; Drainage for Profit and Health, by Waring; Agriculture in some of its Relations with Chemistry, by Storer; Manual of Cattle Feeding, by Armsby; Stock Breeding, by Miles; Hand-Book of Experiment Station Work; and selected publications of the various divisions of the U. S. Department of Agriculture and of the agricultural experiment stations.

Applicants for post-graduate work in agriculture will be assigned special research work and aided in the line of investigation deemed best for each individual student.

BIOLOGY AND HORTICULTURE.

PROFESSOR EARLE.

The subject of biology is required of the senior class in the courses of chemistry and agriculture, and of pharmacy. It occupies five hours a week for three terms of the senior year. The work in this department will be largely confined to the study of the lower forms of plant life and to vegetable physiology, or the study of plants as living beings. Under the first head special attention will be given to the bacteria and other disease producing organisms of man and the higher animals; and to the parasitic fungi that cause diseases of plants. Under vegetable physiology those problems that explain the foundation for correct agriculture practices will be made most prominent. This will include the germination of seeds, the food and

without first placing all the circumstances of the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considsidered.

Examinations will be conducted by a Board of Officers, to be composed of the Commandant of Cadets and two commissioned officers, to be designated by him. The proceedings of the Board are subject to revision and approval by the President of the College.

Each company is officered by one captain, two first lieutenants, one second lieutenant, and with a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The junior class recites once a week in the United States Infantry Tactics.

The senior class recites once a week in "Notes on Military Science."

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. Army, and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

PHYSIOLOGY AND VETERINARY SCIENCE.

PROFESSOR CARY.

PHYSIOLOGY.

The sophomore class studies human anatomy, physiology and hygiene during the entire college year.

It is the aim of the department to give the students practical and real knowledge of the gross anatomy and functions of the various parts of the human body. Due attention is given, also, to the laws of health—the conditions most favorable to a continuous healthy action of the organs of the human body.

Instruction is given by lectures and by text-books, supplemented by black-board drawings, charts, models of organs, a human skelelon, and by dissections of some of the smaller animals (dog, cat, etc.).



CORPS OF CADETS.

Martin's Human Body is used as a text and reference book, and several other works on anatomy, physiology and hygiene may be consulted in the college and experiment station libraries.

VETERINARY SCIENCE AND ART.

Students in the agricultural and chemical course of study, during the entire junior and senior years, devote to this work two hours per week in the class room and three hours per week at practical clinics. Instruction in veterinary science and art is given by lectures.

The lectures are arranged with special reference to the students who are interested in horses or other domestic animals; also to those students who contemplate studying human or veterinary medicine. While it is not the aim to give a complete course in veterinary medicine, we attempt to present the general principles of comparative medicine with such special applications as are adapted to the conditions and wants of the students.



Special attention is given to the exterior anatomy of the horse, while comparative anatomy is presented mainly in connection with the study of the diseases of the different apparatus of the horse or other domestic animals.

Lameness in the horse, minor surgery, the actions and uses of the most common medicines, the principles and practice of comparative medicine, and the ways of protecting the health of domestic animals, are considered in as plain and practical a manner as the time allotted to each subject will permit. Post mortem examinations and the dissection of domestic animals are used as object lessons in the study of general pathology and anatomy.

The senior class in pharmacy devotes three hours per week, during the first term, to the study of bacteriology in the class room and laboratory; and three hours per week to the study of therapeutics during the second and third terms.

To the post-graduate student this department furnishes work in histology, bacteriology, pathology, meat and milk inspection.

The department of physiology and veterinary science is now located by itself in a building which consists of a two-story portion, containing four laboratory rooms on the second floor and a lecture room, museum and office on the lower floor; and a one-story part, which contains an operating room.

The building is supplied with water and gas, and the laboratory is now equipped for work. The museum contains the skeletons of the horse, the ox, the sheep, and the hog, and a human skeleton. It also contains anatomical models of the various parts and organs of the human body and models of many parts of the horse, the ox and the other domestic animals. It also contains a collection of pathological and anatomical specimens, and one of animal parasites.

The new veterinary hospital building contains five large box stalls, four open single stalls, an office and a feed room, on the lower floor; the upper floor is used as a storage room for hay, fodder, etc. The hospital is supplied with fresh water.

Every Saturday during the college year, the department conducts a free clinic for the benefit of the students in veterinary science and art. Clinical cases have been various and numerous, giving the students opportunity to see and study many diseases and lamenesses and to become proficient in minor operations.



LABORATORY OF PHARMACY.

PHARMACY AND PHARMACOGNOSY.

PROFESSOR MILLER.

JUNIOR YEAR.

Pharmacy.—Class work, *three hours* a week. The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in pharmacy. Apparatus used in pharmaceutical processes. Discussion of all classes of pharmaceutical preparations.

Laboratory, *nine hours* a week. Preparation of official and non-official galenicals.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. All official vegetable drugs studied with aid of simple and compound microscope.

SENIOR YEAR.

Pharmacy.—Class work, *four hours* a week. Official and non-official pharmaceutical chemicals, inorganic and organic, including the more important newer remedies. The prescription. Incompatibilities. Doses.

Laboratory, *nine hours* a week. Preparation of official and non-official pharmaceutical chemicals, inorganic and organic. Pharmaceutical testing by pharmacopœial methods. Drug assaying, special attention given to compounding of prescriptions.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. Study of important non-official vegetable drugs; of drugs of animal origin; of adulterants and worthless drugs. Practical exercises in identification of pharmaceutical preparations and chemicals.

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than than fifty prescriptions.

The work in pharmacognosy includes the study of more than three hundred drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

ZOOLOGY.

PROFESSOR BAKER.

This department is prepared to offer instruction in the more important subjects relating to animal life. For the present especial attention will be paid to entomology, discussing useful and injurious insects in their relations to agriculture.

Instruction is offered under four heads:

(1) General Morphology, (2) Embryology, (3) Taxonomy, and (4) Interrelations of Plants and Animals.

The entire course for a post-graduate degree will cover the work of the four full terms. At present, in the course of agriculture, a portion, amounting to one term's work, is required for a degree.

(1) *General Morphology.* Under this head is included a study of the anatomy and physiology of types of each of the great groups of animals. The guides in this work, which is all done at the laboratory table, will be Huxley's Crayfish, Huxley and Martin's Practical Biology, and Parker's Zootomy.

(2) *Embryology.* For work in embryology the department is well equipped, possessing incubators, microtome, the best microscopes, and all necessary re-agents. Students taking embryology will be engaged largely with the development of the chick, using Foster and Balfour's Elements.

(3) *Taxonomy.* The principles of taxonomy will be taught entirely by the laboratory method. Some work will be done in each of the greater groups, dissecting and classifying many of the common animal forms. In this subject there will be used the College collection of periodicals and special works, together with the private library of special papers and monographs of the professor. The private zoological collections of the professor, now in the entomological laboratory, containing a large number of specimens, will be at the service of students.

(4) *Interrelations of Plants and Animals.* It is through the close relations existing between the plant and animal worlds, that the latter has so important an influence on agricultural and other interests. The subject will be taught almost entirely by field work, the facts being brought out by the students themselves through observation and experiment. A consideration of the subject in general will be followed by a study of the various insects injurious to field and garden crops. Beneficial species will also be considered, especial attention being given to the subject of the influence of insects in the

pollination and cross fertilization of plants. The field investigations will be supplemented by lectures.

The department has a most exceptional outfit for thorough general work. It has, in connection with the department of horticulture and mycology, a lecture room and students' laboratory, the latter being a large, well-lighted room, provided with water, gas, slate-topped tables, and fully equipped with microscopes, re-agents and all other apparatus necessary in a study of general zoology. It has also a well equipped entomological laboratory and a costly experimental plant house in connection therewith.

REGULATIONS.

(1) Each student upon entering is required to sign his name in the matriculation book, and pledge himself to obey the rules and regulations of the College.

(2) Every absence from recitation or examination is graded zero.

(3) When the term grade of a cadet is lowered by reason of absence for which a satisfactory excuse can be rendered, a special term re-examination may be subsequently granted, and the grade made on the special re-examintion alone is substituted for that previously received.

(4) Only sickness, as reported by the Surgeon, or being absent by reason of family sickness, will constitute a satisfactory excuse for granting a re-examination.

When a cadet is called away from College by his parents his zeros for absences are not removed.

(5) The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

(6) Privates of the senior class in full standing who are candidates for graduation may be excused by the President from all military drills, and also students over twenty-one years of age at the time of entering College that are permitted to devote their time to one special study, as chemistry, agriculture or pharmacy, provided the time devoted to drill is spent by them in laboratory work.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of Distinction are awarded in public on commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class, provided they have

satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

From the records a monthly circular, or statement, is sent to the parent or guardian.

EXAMINATIONS.

Written monthly examinations on the studies of the month are held by each professor.

At the end of each term written examinations, or written and oral, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations, can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except in extreme cases.

LIBRARY.

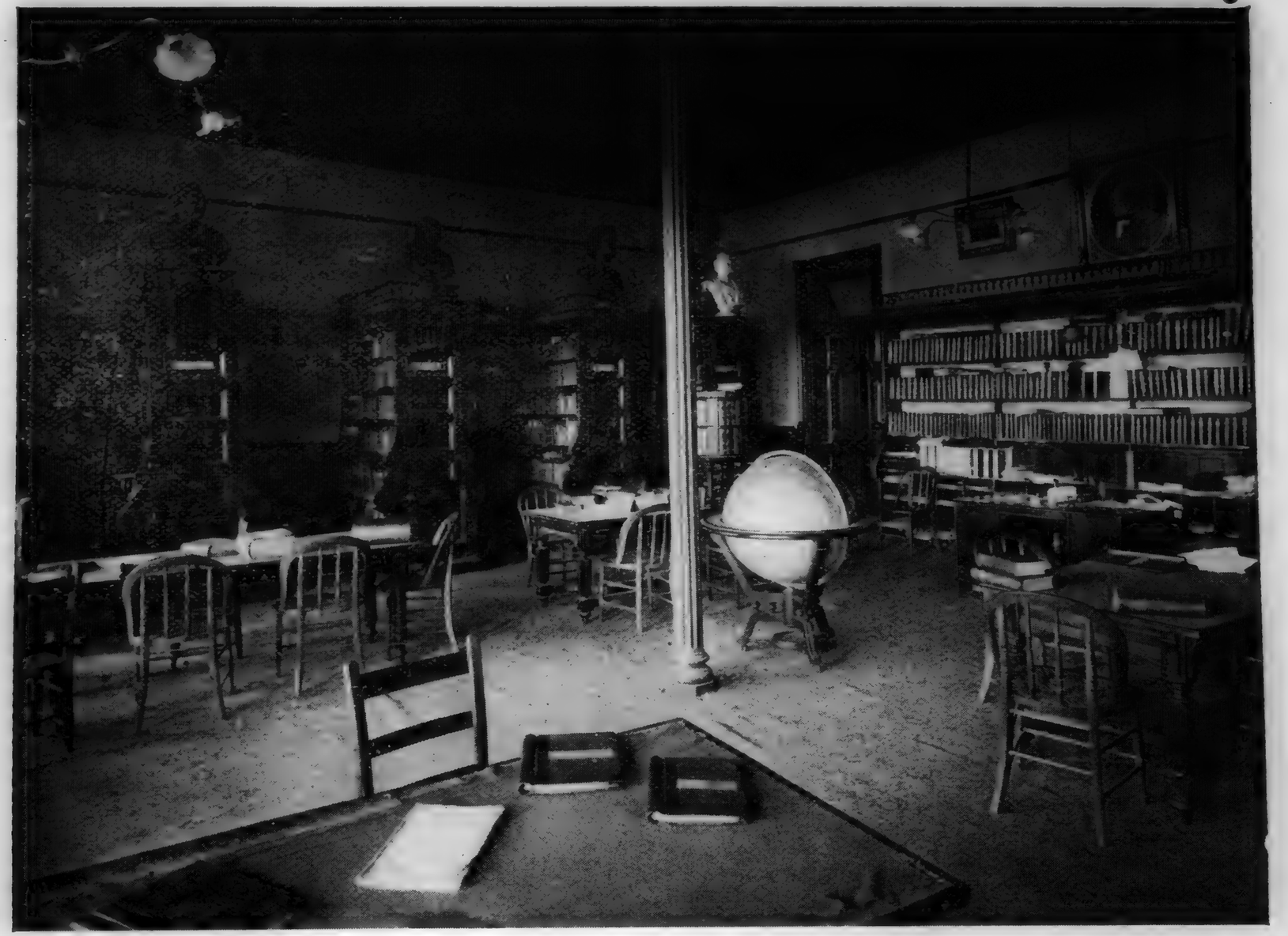
The library occupies an elegant, well-lighted room in the main building, and also two smaller adjacent rooms. It contains over 9,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room, and is thus made an important educational feature.

MUSEUM.

The museum occupies a large room in the third story. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character.

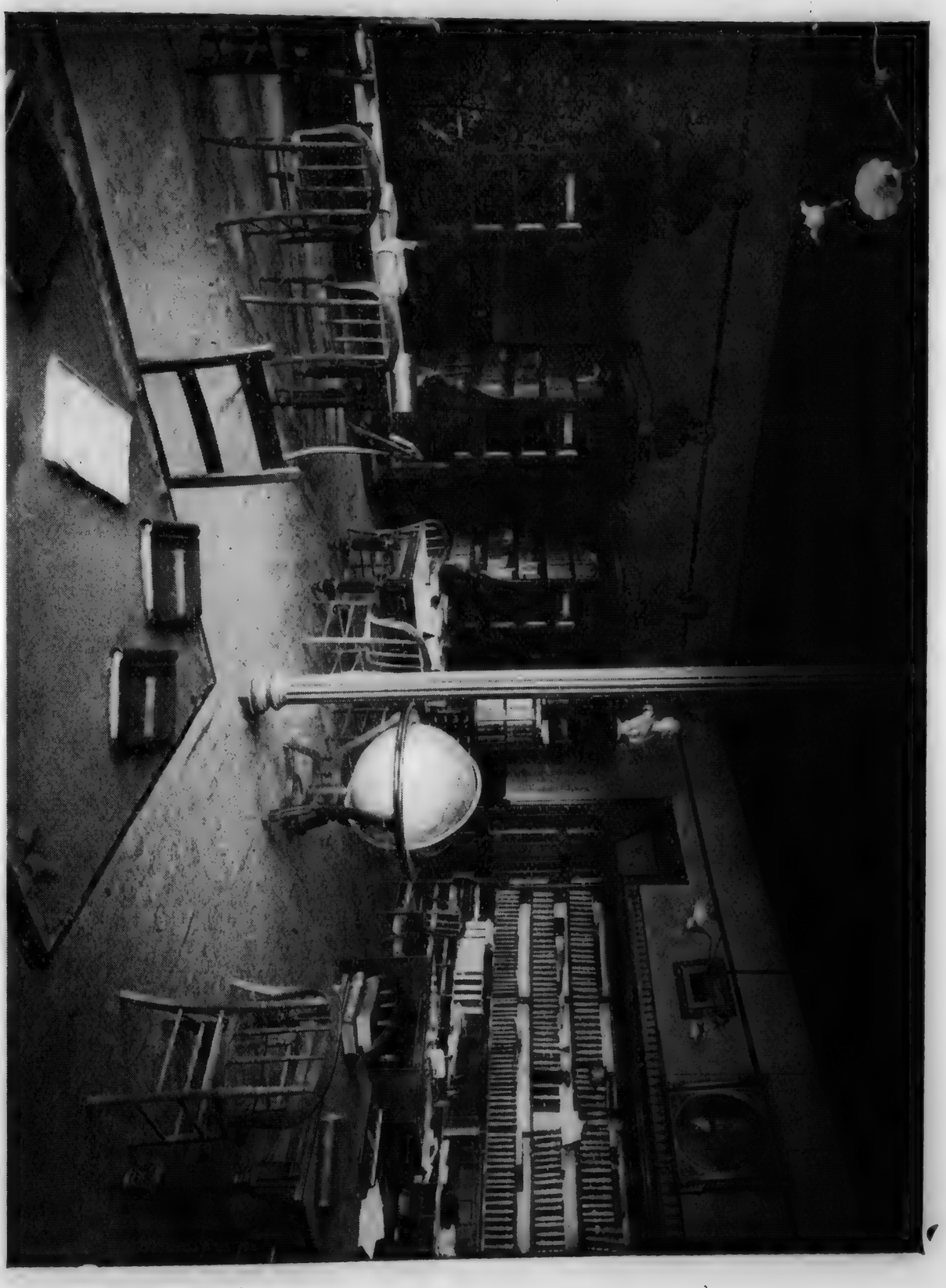
BOARDING HOUSES.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after "call to quarters," or are guilty of any violation of order. The report of the inspector is made to the Commandant on alternate days of the week.



GENERAL LIBRARY.

boarding-houses, are not permit
ission from the Presi



GENERAL LIBRARY.

Students, after selecting their boarding-houses, are not permitted to make changes without obtaining permission from the President, and this permission is given only at the close of a term, except for special reasons.

Permission to board and lodge at different houses will be granted only to seniors, to cadets twenty-one years of age and to those who are on the "honor roll."

By special arrangement with the College authorities, Mrs. M. L. Mitchell and Mrs. A. DeBardeleben will accommodate students with board, lodging, fuel, etc., for $9.50 per month.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Incidental fee, per half session	$ 2 50
Library fee, per half session	1 00
Surgeon's fee, per half session	2 50
	$ 6 00

These fees are payable, $6.00 on matriculation and $6.00 on February 1st. By order of the Trustees no fees can be remitted.

For students entering after January 1st, the fees for a half session only are required.

For a non-resident of the State there is a charge for tuition of $20.00 per session, payable $10.00 on matriculation and $10.00 on February 1st, in addition to the semi-annual fee of $6.00 payable by all students.

Board, per month, with fuel and lights	$ 12 00 to	$15 00
Fees	12 00 to	12 00
Board, lodging, fuel and lights	108 00 to	135 00
Washing	9 00 to	9 00
Books, etc., say	8 00 to	15 00
Total	$137 00	$171 00

For non-resident student there should be added to the amounts given above $20.00 for tuition. This tuition fee is not required of any non resident student who matriculated during the session of 1896–7.

Tuition for students not residents of Alabama is $20.00 per session,

unless remitted by the Trustees to worthy students upon the recommendation of the Faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship after the first year, to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

UNIFORM.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made, by a contractor, of excellent cloth manufactured at the Charlottesville mill. This suit, including cap, costs at present $14.00. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to college property for which he may be liable.

At the close of the session the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

Fees to be paid on entrance:

Incidental fee	$ 2.50	
Library	1.00	
Surgeon	2.50	
Contingent fee	5.00	
Uniform	14.00	
	$25.00	$25.00
Tuition, non-resident		10 00
		$35.00

Besides the above, the student should deposit with the Treasurer enough to pay for books, one month's board, incidentals, amounting to, say $25.00. Hence, a resident of Alabama should deposit with the Treasurer $50.00, a non-resident, $60.00.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons or wards, whether for regular charges of college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited, checks are drawn on the Treasurer of the College by the cadet to pay his necessary expenses. These checks are paid only when officially approved. The approval is given only for necessary expenses, as stated in the catalogue, unless specially requested in writing by the parent.

The College cannot be held responsible for the expenses of a student, unless the funds are deposited with the Treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty an essay or oration and read and deliver the same at commencement, if required by the Faculty.

It must be given to the Professor of English by the first of April.

The subject must be submitted for approval by January 1st.

LITERARY SOCIETIES.

There are two literary societies connected with the College—the Wirt and the Websterian. Each has a hall in the main building.

These societies hold celebrations on the evenings of Thanksgiving Day and 22nd of February. They elect annually, with the approval of the Faculty, an orator to represent them at the close of the year.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in the presence of the Faculty and students.

The *first and second terms* the students of the junior and sophomore classes are exercised in original orations and declamation.

The *second and third terms* the members of the senior class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society, in Langdon Hall, on ALUMNI DAY, Tuesday of commencement week. The following are the officers of the society:

C. W. ASHCRAFT, '88, President.
W. H. BLAKE, '79, Vice-President.
W. L. FLEMING, '96, Secretary.
B. H. CRENSHAW, '89, Treasurer.
J. T. ASHCRAFT, '80, Orator for 1898.

SURGEON.

The Surgeon is required to be present at the College daily, to visit at their quarters the cadets that are reported sick, and to give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering college.

ACADEMIC YEAR.

The academic year for 1898–99 commences on Wednesday, 14th September, 1898 (*second Wednesday after the first Monday*), and ends on Wednesday, 14th June, 1899 (*second Wednesday after the first Monday*), which is commencement day.

It is divided into three terms. The first term extends from the opening of the session to the 23rd of December; the second term begins January 3rd, and ends March 19th; the third term continues to the close of the session.

RESOLUTION OF THE TRUSTEES.

The following resolution has been adopted by the Trustees:

That in view of increased facilities for instruction in agriculture and the technical departments of education now possessed by this College, especially in the mechanic arts, made possible by the recent donation from the State, the Faculty are authorized, in addition to the legal name of this College, to print on the catalogue the words ALABAMA POLYTECHNIC INSTITUTE, as significant of the expanded system of practical instruction in industrial science in the course of education now provided for.

DONATIONS TO LIBRARY.

U. S. Government.—Public Documents, 216 volumes.

Senator Morgan.—Public Documents, 46 volumes.

American Book Company.—Lights of Two Centuries.

Col. M. V. Moore.—Rhyme of the Southern Rivers.

Prof. C. C. Thach.—Poet Lore, 2 volumes; Bolingbroke's Works, 4 volumes; Delivered from Afar, by Ralph Roberts.

Governor of New South Wales.—A History of the Development of New South Wales.

Dr. P. C. Candidus.—Pharmaceutical Reports (for the Department of Pharmacy).

DONATIONS TO THE DEPARTMENT OF ELECTRICAL ENGINEERING.

Stanley Electric Co., Pittsfield, Mass., one horse-power induction motor, with switch, transformer and condenser.

Campbell & Wright, Jr., Roanoke, Ala., one "Star" 40 light dynamo.

Cutter Electrical and Manufacturing Co., Philadelphia, Pa., one circuit breaker.

Sentinel Electric Co., Wilmington, Del., one circuit breaker.

D. & W. Fuse Co., Providence, R. I., samples of enclosed fuses.

Shawmut Fuse Wire Co., Boston, Mass., samples of fuses.

Chicago Fuse Wire & Mfg. Co., Chicago, Ill., samples of fuses.

Buckeye Electric Co., Cleveland, O., samples of lamps.

General Electric Co., Schenectady, N. Y., samples of lamps.

Sawyer-Man Electric Co., Allegheny, Pa., samples of lamps.

Fort Wayne Electric Corporation, Fort Wayne, Ind., photographs.

Bossert Electrical Construction Co., Utica, N. Y., samples of conduit boxes.

Warren Electric Specialty Co., Warren, O., samples of lamps.

Beacon Lamp Co., N. J., samples of lamps.

Columbia Incandescent Lamp Co., St. Louis, Mo., samples of lamps.

PERIODICALS.

The following periodicals are regularly received in the main library and are accessible to students.

LITERARY.

QUARTERLIES.

Current History,
Economic Journal,
Edinburgh Review,
Political Science Quarterly,
Quarterly Journal of Economics,
Quarterly Review,
Sewanee Review.

MONTHLIES.

Atlantic Monthly,
Blackwood's Magazine,
Bookman,
Book Reviews,
Century Magazine,
Chautauquan,
Contemporary Review,
Cosmopolitan,
Eclectic Magazine,
Education,
Educational Review,
Fortnightly Review,
Forum,
Harper's Monthly,
McClure's Magazine,
Munsey's Magazine,
Nineteenth Century,
North American Review,
Review of Reviews,
Scribner's Magazine,
Westminister Review.

WEEKLIES.

Academy,
Critic,
Dial,
Harper's Weekly,
Independent (New York),
Literary Digest,
Literary World (Boston),
Nation,
Outlook,
Saturday Review,
Spectator.

SCIENTIFIC.

American Machinist,
American Journal of Mathematics,
Cassier's Magazine,
Compressed Air,
Electrical Engineer,
Electrical Review,
Electrical World,
Electrician,
Engineering,
Engineering Magazine,
Engineering and Mining,
Engineering News,
Journal of Franklin Institute,
Machinery,
Mathematical Monthly,
Physical Review,
Power,
Scientific American,
Sibley Journal of Mechanical Engineering,
Transactions American Institute of Electrical Engineers.

SCIENTIFIC JOURNALS

and newspapers received in the agricultural experiment station library.

American Agriculturist,
American Cultivator,
American Gardening,
American Geologist,
American Journal of Science,
American Monthly Microscopical Journal,
American Naturalist,
American Swineherd,
Analyst,
Anatomischer Anzeiger,
Annales Agronomiques,
Annales des Sciences Naturelles: Botanique,
Annals Society Entomology,
Annals of Botany,
Annals & Mag. Natural History,
Anthony's Photographic Bulletin,
Annals des K. K. Nat. Hist.,
Asa Gray's Bulletin,
Botanical Gazette,
Botanisches Centralblatt,
Breeder's Gazette,
Bulletin N. Y. Botanical Garden,
Bulletin Torrey Botanical Club,
Bulletin Société d'Entomologie,
Bulletin Société Mycologique,
Bulletin Botanical Dept. Jamaica,
Berliner Thierærztliche Wochenschrift,
Chemiker-Zeitung,
Chemical News,
Centralblatt fuer Bakteriologie, I,
Centralblatt fuer Bakteriologie, II,
Commercial and Financial Chronicle,
Comptes Rendus,
Cotton Planter Journal,
Country Gentleman and Cultivator,

Die Landwirt. Versuchs-Stationen,
Deutsche Zeitschrift fuer Tiermedicine,
Deutsche Landwirtschaftliche Presse,
Drainage Journal,
Dairy World,
Elgin Dairy Report,
Entomological Monthly Magazine,
Entomologist,
Entom. Nachrichter,
Erythea,
Farm and Home,
Farmer's Guide,
Farm and Fireside,
Farmer's Home,
Farmer's Voice,
Farming,
Farmers' Gazette of New South Wales,
Farm News,
Florida Farmer and Fruit Grower,
Forester,
Garden and Forest,
Gardener's Chronicle,
Gentleman Farmer,
Herwigia,
Hoard's Dairyman,
Homestead,
Horticultural Gleaner,
Holstein-Friesian Register,
Hufschmied,
Indiana Farmer,
Journal d'Agriculture Pratique,
Journal fuer Landwirtschaft,
Journal Cincinnati Society of Natural History,
Journal American Chemical Society,
Journal of Chemical Industrial Society,
Journal of Comparative Pathology and Therapeutics,
Journal of Geology,
Journal Chemical Society (England),
Journal of Horticulture,
Journal Royal Agricultural Society,
Journal Applied Microscopy,
Journal Royal Microscopical Society,
Journal Franklin Institute,
Kansas Farmer,
Landwirt Jahrbuecher,
Market Garden,
Massachusetts Ploughman,
Memoirs Torrey Botanical Club,
Montana Fruit Grower,
Naturæ Novitates,
Natural Science,
Nature,
New England Florist,
Optical Lantern Magazine,
Our Grange Home,
Practical Farmer,
Pittonia,
Philosophical Magazine,
Photographic Bulletin,
Photographic Times,
Popular Science Monthly,
Proceedings Academy of Natural Science, Philadelphia,
Revue Bryologique,
Revue Mycologique,
Revue Horticole,
Rural New Yorker,
Science,
Southern Cultivator,
Southern Farmer,
Southern Farm Gazette,
Southern Farm,
Southern Planter,
Successful Farmer,
Sunshine,
Southern States Farm Magazine,
Southern Farmer and Horticulturist,
Tennessee Farmer,

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Texas Farm and Ranch,
Transactions Entomological Society,
Veterinary Journal,
Veterinary Review.
Wallaces' Farmer,
Western Rural,
Western Creamers,
Wilson's Photographic Magazine,
Wool Record,
Zeitschrift fuer Anal. Chem.,
Zeitschrift fuer Fleisch-und Milch-Hygiene,
Zoologischer Anzeiger,
Zeitschrift fuer Tiermedicine.

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Catalogue of the Alabama Polytechnic Institute

1898

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▶  12  310     Annual ¶
▶  13  362 0   1893-94-1898-99. ¶
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MAIN BUILDING.
ALABAMA
POLYTECHNIC INSTITUTE.

CATALOGUE

OF THE

Alabama Polytechnic Institute.

STATE COLLEGE.

FOR THE

Benefit of Agriculture and the Mechanic Arts.

AUBURN, ALABAMA.

1899-1900.

MONTGOMERY, ALA.:
BROWN PRINTING COMPANY
1899.

AUB'

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His Excellency, JOSEPH F. JOHNSTON, President.....*Ex-officio.*
JOHN W. ABERCROMBIE, Superintendent of Education..*Ex-officio.*

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TANCRED BETTS.....(term expires 1903).....Huntsville.
WALTER C. WHITAKER...(term expires 1903).....Tuscaloosa.

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Assistant Librarian.

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W. E. JOHNSON,
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C. C. THACH,
Superintendent of Library.

O. D. SMITH,
Corresponding Secretary.

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J. F. DUGGAR.....Agriculturist.
F. S. EARLE.....Biologist and Horticulturist.
J. T. ANDERSON.....Associate Chemist.

ASSISTANTS.

C. L. HARE.....First Assistant Chemist.
J. Q. BURTON.....Second Assistant Chemist.
T. U. CULVER.....Superintendent of Farm.



OBJECT OF THE INSTITUTE.

The Institute is a distinctive school of Science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts established by the State in 1872, by endowing it with the land-grant appropriation made by the U. S. Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences is not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The Institute now possesses facilities for giving laboratory instruction in applied science in the following departments:

I—IN AGRICULTURE AND HORTICULTURE.

The farm contains 226 acres, and is supplied with illustrative specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

II—IN MECHANIC ARTS.

The laboratory of mechanic arts is used as an auxiliary in industrial education, and as a school of manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is *instructive* in character, as in any other laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the Institute each student enters this school and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus by associating manual and mental training, to educate thoroughly the student for the duties of life, whatever may be his voca-

tion. There is no attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall, 90x50 feet, and is provided with a twenty-five horse-power Corliss engine, a planer, circular saw, band-saw, two scroll saws, a buzz planer, a pattern maker's lathe, twenty-four stands, each with a lathe and a full set of tools, and thirty benches for carpenter work with the tools requisite for construction.

A brick building, 30x87 feet, with two rooms, has been constructed especially for instruction in working iron.

One room is equipped with sixteen forges and tools required for a forge department, and the other with a Colliau cupola furnace, a core oven, a brass furnace, molding benches, foundry crane constructed by students, and special tools for use in a foundry.

The forge and foundry rooms are furnished with a Sturtevant fan and exhauster, supplied with power from a ten-horse power engine, constructed by the students in mechanic arts.

The machine department occupies a brick building, 30x50 feet, and is equipped with ten engine lathes, one speed lathe, one 20-inch drill press, one 10-inch sensitive drill, one post drill, one 16-inch shaper, one 5-foot planer, one universal milling machine, a corundum tool grinder, a small emery grinder, a universal cutter and reamer grinder, a No. 1 Brown & Sharpe universal grinding machine, and a power hack saw.

The chipping and filing department is arranged with benches, vises and tools for twelve students.

The tool room is well supplied with special tools for use in instruction, including a machine for grinding twist drills. The rooms are lighted with electricity whenever necessary.

III—IN PRACTICAL CHEMISTRY.

The chemical laboratory is supplied with modern apparatus, and in its equipment affords excellent facilities for instruction in practical chemistry and for investigation.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research. The building contains a large general laboratory that accommodates sixty students, a lecture room with a capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

IV—IN ELECTRICAL ENGINEERING.

The electrical laboratory is well supplied with modern appliances for instruction in electrical engineering. It occupies two large rooms in the basement and is equipped with many fine instruments of precision: Kelvin deka-ampere balance, Kelvin graded current and potential galvanometers, Cardew voltmeter, Weston voltmeters and ammeter, Queen's magnetic vane voltmeter and ammeter, Thomson watt-meter, Hartman and Braun voltmeter, Kohlrausch ammeter, Wood ammeter, Weston alternating current voltmeter, Weston direct reading watt-meter, Queen's "Acme" testing set, Rowland-D'Arsonval galvanometers, Kelvin electrostatic voltmeter, Edison ammeters, and many other current-measuring instruments, resistance boxes, Wheatstone bridges, condensers, telephones, batteries, magnets, etc.

The dynamos occupy a separate building and are operated by a twenty-five horse power Atlas engine, and a thirty-five horse power Westinghouse engine. In this building are installed the following dynamos:

Edison compound 12 Kilo-watt generator, Thomson-Houston 150 light 110 volt dynamo, Weston 150 volt 25 ampere generator, Crocker-Wheeler one horse power motor, Ideal 3 phase alternator, Brush 6 arc light dynamo with lamps, two Baxter street car motors, 20 horse power each (so connected as to be used as direct or alternating current motors or generators), one 5 horse power three phase motor, one General Electric 20 horse power motor, one 40 light shunt dynamo, one Edison 3 Kilo-watt generator, one Stanley induction motor with condenser, two bi-phase induction motors (built by students), one 9 light Thomson-Houston arc machine, two phase alternator and 500 volt 20 ampere generator, made by students. There is also in connection with this department at the experiment station, a ten horse power motor, made by students, which is operated by the 500 volt generator in the dynamo room.

V—IN PHYSICS.

In the College building provision is made for elementary laboratory work in the department of physics. Special rooms are appropriated for this purpose, and are equipped with the necessary appliances for instruction in practical physics.

VI—IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate thirty students, with an excellent collection of minerals.

VII—IN BOTANY.

In the work of the agricultural experiment station there is a botanical garden under the charge of the professor of botany, investigations in botany are given special attention, and opportunities are offered advanced students for practical work in a laboratory especially

fittted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research. This department is provided with Auzoux's clastic models of seeds and flowers for teaching botany.

VIII—IN BIOLOGY.

The laboratory in this department adjoins the lecture room of the professor, and is furnished with tables, excellent microscopes and appliances for investigation. Each student of the class works under the supervision of the professor.

IX—IN ENGINEERING AND SURVEYING.

The necessary apparatus for field wŏrk, including transits, levels, plane table, models of bridges, etc., is provided for the use of the students, and the customary exercises in the field are given.

X—IN DRAWING.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing-room, which will accommodate fifty students, is provided with tables, lock boxes, etc.

XI—IN MECHANICAL ENGINEERING.

The mechanical course has been extended to include experimental work in mechanical engineering.

The apparatus available for this instruction is as follows: A 45 horse power Imperial Cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Deane air pump and circulating pump, a 25 horse power Harris-Corliss engine, a 35 horse power Atlas engine, two 9 horse power engines constructed by students, the boilers belonging to the regular power plant, a small engine and boiler for the special purpose of making efficiency tests, a Deane duplex steam pump, a four horse power gaso-

line engine, an Ericsson hot air engine, a New York air pump, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, thermometers, a pyrometer, scales, a standard steam guage with apparatus for testing steam gauges, a Crosby dead weight tester with weights for correcting the standard gauge, a 35,000-pound testing machine, a Henning micrometer extensometer, and a Carpenter calorimeter with the necessary auxiliary apparatus for determining the heating value of different kinds of coal.

This work is now carried on in the lower story of the annex to the chemical laboratory. This room is 30 x 60 feet in size and was specially designed and fitted up for this purpose. A three-inch steam main has been laid from the boiler house, thus securing a steam supply in the building for all work requiring it. The work is thoroughly practical, and it is desired to extend it as rapidly as the funds available for the purchase of apparatus will allow.

XII—IN PHYSIOLOGY AND VETERINARY SCIENCE.

There has been constructed for the veterinary department a new and separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, and museum with skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

XIII—IN PHARMACY.

The laboratory of this department occupies the second floor of the annex to chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations.

The students work in the laboratory with the professor, from five to eight hours, six days in the week.

It is expected to increase the facilities as means are available.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is supplied with new cadet muskets and accoutrements for the corps.

COLLEGE BUILDINGS.

The frontispiece is a representation of the main College building. It is 160 x 71 feet and contains forty-five rooms. This building is not used for dormitories for students, but is appropriated to purposes of instruction and investigation.

It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc.

LANGDON HALL.

This is a two-story building, 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

The first story is appropriated to the laboratory of mechanic arts.

THE CHEMICAL LABORATORY.

As shown on the opposite page, is a two story structure, 40 by 60 feet, with a rear projection, 35 by 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and terra cotta ornamentation.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains improved working tables, with water, gas and every necessary appliance for chemical work.

The second story contains a lecture room with seats and tablets for eighty students. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and mechanical chemistry, prominent subjects taught in the institution.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building, containing rooms for mechanical engineering, and drawing.



CHEMICAL LABORATORY.

GRADUATES IN 1898.

CLASS OF 1898.

HONOR GRADUATES.

COURSE IN CHEMISTRY AND AGRICULTURE.

Arthur McBride Ransom.....Georgia.

COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

Jonathan Haralson.....Dallas.

COURSE IN CIVIL ENGINEERING.

Frank Greene Morriss.....Talladega.

GENERAL COURSE.

Halbert Clyde Ray.....Geneva.
Alexander Humphreys Clark.....Montgomery.

COURSE IN PHARMACY.

John Wesley Williams.....Lee.

DEGREES.

BACHELOR OF SCIENCE.

John Cocke Abernethy.....Florida.
Lemuel Sledge Allen.....Marengo.
Erin Black.....Lee.
Mary Wright Boyd.....Lee.
William Hamill Bruce.....Montgomery.
Alexander Humphreys Clark.....Montgomery.
Henry Neal Coleman.....Lowndes.
George Oliver Dickey.....Crenshaw.
Duncan Patterson Dixon.....Talladega.
Clifford Lamar Edwards.....Lee.
Richard Roe Eppes.....Marengo.
Frank Farley.....Lee.
William Shelby Garner.....Shelby.
Elmer Wynn Gray.....Georgia.
Jonathan Haralson.....Dallas.
Francis Williams Hare.....Lee.
Charles Edward Harrison.....Florida.

Harry Streety Houghton.....Jefferson.
William Earle Hudmon.....Lee.
Joseph Wood King.....Georgia.
Absalom Mason Kennedy.....Montgomery.
Jessie Hamilton Lockhart.....Georgia.
John Richard McCalla.....Lee.
Peter Mastin McIntyre.....Montgomery.
Julia Hill Moore.....Lee.
Frank Greene Morriss.....Talladega.
Ashleigh Strudwick Moses.....Baldwin.
John Sanford Paden.....Etowah.
Alexander Simpson Pow.....Jefferson.
Annie Lucinda Purifoy.....Lee.
Arthur McBride Ransom.....Georgia.
Halbert Clyde Ray.....Geneva.
James Barrie Shivers.....Perry.
Newton Caraway Smith.....Shelby.
Clifford West Stewart.....Montgomery.
Edward Wadsworth Stone.....Montgomery.
Rush Price Strong.....Mobile.
Almuth Cunningham Vandiver.....Talladega.
Bishop Billing Warwick.....Talladega.
John Wesley Williams.....Lee.
Joseph Leonard Wood.....Mobile.
Neander Montgomery Woods.....Tennessee.
Arthur Williamson Greene (class of 1897).....Chambers.

CIVIL ENGINEER.

George Nathan Mitcham.....Georgia.

ELECTRICAL AND MECHANICAL ENGINEER.

Thomas Ganaway Conner.....Macon.
Arthur Williamson Greene.....Chambers.
William Welch Hill.....Talladega.
Benjamin Sweat Patrick.....S. Carolina.

MASTER OF SCIENCE.

James Washington Culver.....Lee.
George Webster Duncan.....Lee.
John Buford Hobdy.....Bullock.
George Michael Holley.....Georgia.
Edwin Boyce Joseph.....Montgomery.
William Parker Leonard.....Georgia.
William Jacob Nixon.....Tennessee.
Frederick Loyd Tate.....Russell.
Reuben David Webb.....Coosa.

DISTINGUISHED STUDENTS.

Students who receive a grade above 90 in three studies in the freshman class, in four in the Sophomore, in five in the junior, and in six in the senior, are distinguished for excellence in scholarship, and are awarded

HONOR CERTIFICATES.

The following students received honor certificates in 1898:

SENIOR CLASS.

Erin Black ..... Lee.
Mary Wright Boyd ..... Lee.
Alexander Humphreys Clark ..... Montgomery.
Frank Farley ..... Lee.
William Shelby Garner ..... Shelby.
Jonathan Haralson ..... Dallas.
Charles Edward Harrison ..... Florida.
Harry Streety Houghton ..... Jefferson.
William Earle Hudmon ..... Lee.
Jessie Hamilton Lockhart ..... Georgia.
Julia Hill Moore ..... Lee.
Frank Greene Morriss ..... Talladega.
Alexander Simpson Pow ..... Jefferson.
Annie Lucinda Purifoy ..... Lee.
Arthur McBride Ransom ..... Georgia.
Halbert Clyde Ray ..... Geneva.
Rush Price Strong ..... Mobile.
John Wesley Williams ..... Lee.

HONOR STUDENTS IN THE JUNIOR CLASS.

COURSE IN CHEMISTRY AND AGRICULTURE.

Flake Earle Farley ..... Loe.

COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

Julien Chandler Yonge ..... Florida.

GENERAL COURSE.

William Oscar Scroggs ..... Georgia.

JUNIOR CLASS.

Alston Boyd	Tennessee.
Bailey Edgar Brown	Morgan.
Mattie Lucile Burton	Lee.
Thomas Greene Bush	Calhoun.
McNeill Crawford	Lee.
Marion Dawson	Elmore.
Flake Earle Farley	Lee.
Jones Stephen Gilliland	Coosa.
Kate Meade Lane	Lee.
Lottie Everard Lane	Lee.
Isham Fennell McDonnell	Madison.
Hattie Marshall Phelps	Lee.
Mary Evelyn Robinson	Lee.
William Oscar Scroggs	Georgia.
William Alexander Thomason	Randolph.
Julien Chandler Yonge	Florida.

SOPHOMORE CLASS.

John Samuel Black	Lee.
Guy French Boyd	Lee.
Jesse Wright Boyd	Lee.
William Crawford Dowdell	Lee.
Luther Noble Duncan	Franklin.
Sherman Guy Forbes	Henry.
Edward Zellars Heard	Lee.
John Paul Illges	Georgia
Moses Frank Kahn	Lee.
Charles Wellington Nixon	Tennessee.
Hiram Perry Powell	Georgia.
James Richard Rutland	Chambers.
John Winfred Shuff	Talladega.

FRESHMAN CLASS.

William LeGrande Burnett	Barbour.
John Drewry Foy	Barbour.
Arthur Flournoy Jackson	Georgia.
Abram Hill Mitchell	Lee.
Gaius Whitfield	Marengo.
Edward Houston Wills	Lee.

CATALOGUE OF STUDENTS.

FOR THE SESSION OF 1898-99.

Graduate Students.

[*Residence is Alabama when State is not given.*]

NAME.	RESIDENCE.
Erin Black	Lee.
Mary Wright Boyd	Lee.
Alexander Humphreys Clark	Montgomery.
Toccoa Cozart	Montgomery.
Henry Neal Coleman	Lowndes.
Jonathan Haralson	Dallas.
Francis Williams Hare	Lee.
Charles Edward Harrison	Florida.
Joseph Wood King	Georgia.
John Richard McCalla	Lee.
George Nathan Mitcham	Lee.
Frank Greene Morriss	Talladega.
Ashleigh Strudwick Moses	Baldwin.
Annie Lucinda Purifoy	Lee.
Arthur McBride Ransom	Georgia.
Bishop Billing Warwick	Talladega.
John Wesley Williams	Lee.
George Wrigley	Georgia.

Undergraduate Students.

SENIOR CLASS.

LeRoy James Allen	Marengo.
Jesse Maldrie Atkinson	Dale.
Emmett Gale Buck	Mobile.
Alston Boyd	Tennessee.
Harriet Lavinia Dabney Bondurant	Lee.
Bailey Edgar Brown	Morgan.
Mattie Lucile Burton	Lee.
Thomas Greene Bush	Calhoun.

Charles Wallace Collins.....Hale.
McNeill Crawford.....Lee.
Colonel Seldon Crew.....Coosa.
Frederick Robert Daly.....Jefferson.
Bolivar Davis .....Jefferson.
Marion Dawson .....Elmore.
James Francis Dobbin .....Florida.
Flake Earle Farley .....Lee.
Arthur Henry Feagin ... .Bullock.
Hugh Matherson Fenn.....Barbour.
Michael Thomas Fullan ....Georgia.
Jones Stephens Gilliland.....Coosa.
John Ross Glenn .....Lee.
Theophilus Eaton Goodwin.....Crenshaw.
Fannie Maud Holstun.....Lee
Felix Grundy Horn.....Sumter.
Kate Meade Lane ....Lee.
Lottie Everard Lane..... Lee.
Harry Toulmin Lay.....Montgomery.
Thomas Hennington McAdory .....Jefferson.
Isham Fennell McDonnell.....Madison.
Charles Henry Merritt .....Chilton.
Jackson Chadwick Minge..... .....Marengo.
Benjamin Otey Minge.....Marengo.
Hartley Alley Moon ....Coosa.
James Royden Peabody.....Georgia.
Hattie Marshall Phelps .. ..Lee.
Lawrence Bratton Rainey .....DeKalb.
Mary Evelyn Robinson.....Lee.
John Osgood Rush .....Autauga.
William Oscar Scroggs.....Georgia.
James Cary Slaton.....Macon.
Joseph Wilson Sutcliffe .. .. Louisiana.
Dozier Turner .....Elmore.
James Alfred Ward..... .....Madison.
Thomas William Wert .....Morgan.
George Madison Wheeler..... ....Madison.
Julien Chandler Yonge.....Florida.

JUNIOR CLASS.

Frank Hunter Anderson ....Bullock.
William Lawrence Anderson .....Montgomery.
Fletcher Ashcraft ....Lauderdale.
~~Robert Pierce Baldwin~~ ..... ~~Russell.~~
Malcolm Alfred Beeson .....Etowah.
John Samuel Black .....Lee.
Guy French Boyd .....Lee.
Jesse Wright Boyd .....Lee.
Millard Morse Brooks.....Escambia.
~~Abner Mason Buchman~~ (c) .... ~~Lee.~~
Edwin Bukofzer.....Tennessee.
Judson Lamar Burke ....Lee.
Andrew Crozier Cameron.....Jefferson.
Frank Bovard Chapman (c) .....Louisiana.
~~Asbury Nicholson Culver~~..... Lee.
Emma Beall Culver.....Lee.
William Crawford Dowdell ....Lee.
Ellis Madison Duncan .....Franklin.
Luther Noble Duncan.....Franklin.
Rutherford Sylvanus Finch. .....Montgomery.
John Jefferson Flowers .....Butler.
Sherman Guy Forbes ....Dale.
Earle Humphreys Foy .....Barbour.
~~James Edgar Foy~~ ....~~Barbour.~~
~~Charles Eugene Fuller~~ (c) .....~~Chambers.~~
~~James Olney Goggans~~ ....~~Tallapoosa.~~
Bertha Mae Grout.....Lee.
~~William Weatherly Hannon~~ (c) .....~~Montgomery.~~
Roland B. Hall.....Georgia.
Harry Young Hall.....Jefferson.
Charles Lewis Harold.....Escambia.
Edward Zellars Heard .....Lee.
Mabel Heard (c) ....Lee.
~~James Alexander Hines~~ (c) .....~~Chambers.~~
Mary Katherine Hollifield.....Lee.

(c) Conditioned.

John Paul Illges.....Georgia.
George Martin Illges (c).....Montgomery.
~~Walter Alfred Jordan~~.....~~Elmore~~.
Moses Frank Kahn.....Lee.
Wilber Edrald Kelley.....Jefferson.
Henry Daes Lesesne.....Mobile.
William Christopher Martin.....Lee.
John Maples.....Russell.
Enoch Marvin Mason.....Lee.
~~Walter Deems McCrary~~.....~~Lee~~.
~~Benjamin Lee McGee~~ (c).....~~Georgia~~.
James Hardie McGehee.....Montgomery.
Kenneth Bethune McKenzie.....Butler.
Edward Andrew Miller (c).....Marshall.
William Livingston Neill.....Jefferson.
Charles Wellington Nixon.....Tennessee.
William Forney Osburn.....Lee.
Hiram Perry Powell.....Georgia.
Fleming James Rigney.....Madison.
James Richard Rutland.....Chambers.
William Stowe Rutledge.....Lee.
Frederick Blount Shepard (c).....Mobile.
John Winfred Shuff.....Talladega.
Joseph Manning Steiner.....Butler.
Horace Ware.....Calhoun.
~~John Rutledge Williams~~.....~~Jefferson~~.
~~James Waldo Woodruff~~.....~~Georgia~~.
Moses Conrad Wright.....Macon.

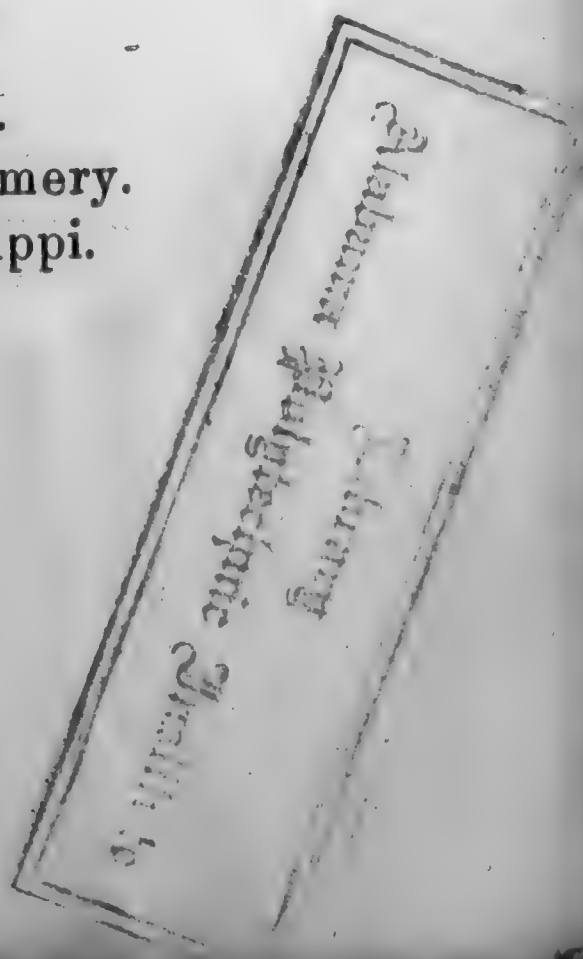
~~SOPHOMORE~~ CLASS.

Oliver Burnside Andrews.....Tennessee.
Stearnes Pearson Baker.....Tallapoosa.
Joseph Nathaniel Barker.....Georgia.
Frank Carlisle Bivings.....Georgia.
Thomas Bragg.....Lee.
Kenneth Bradford.....Montgomery.
William LeGrande Burnette.....Barbour.

(c) Conditioned.

Salmon Holmes Burns .....Lee.
Henry Herschel Conner .....Macon.
James Lorenzo Deaton.....Georgia.
John Isham Dorsey (c).....Lee.
William Hamilton Eager .....Tennessee.
John Heron Edmonson.....Barbour.
Eugene Flynn Enslen .....Jefferson.
Malcolm Nassau Fleming.....Georgia.
John Drewry Foy.....Barbour.
William Alexander Frazer.....Lee.
Walter Lee Greene .....Lee.
Jacob Lionel Haas.....Montgomery.
Alexander Cameron Hannon.....Montgomery.
Paul Shields Haley .....Walker.
Wallace Benjamin Harrison.....Talladega.
Michael Smith Harvey .....Lee.
Daniel Haygood Haynes.....Lowndes.
William Baxter Haynes .....Lowndes.
Charles Henry Haynes.....Bullock.
James Kelly Haynie .....Montgomery.
Arber Samuel Hertz .....Georgia.
Robert Holland Hood.....Jefferson.
Frank Dowsing Howard.....Autauga.
Edwin Dewitt Huguley.....Georgia
Blair Hughes (c) .....Jefferson.
Arthur Flournoy Jackson.....Georgia.
James Baxter Jackson .....Lee.
Jefferson Franklin Jones .....Sumter.
Gordon Houston Jones (c).....Montgomery.
Myron Daniel Kahn .....Lee.
Claude Kauffman.....Mobile.
Emmett Stephens Killebrew.....Dale.
Howard Malcolm Kilpatrick .....Georgia.
Edward Kelley .....Montgomery.
Karl Edward Lindrose .....Mississippi.
William Reid Lancaster (c).....Lee.

(c) Conditioned.



Daniel Stacy Martin .....Barbour.
Robert Murdoch Martin.....Barbour.
Earle Edwin McBryde .....Wilcox.
Edward Pinson McLennan .....Barbour.
Benjamin Baldwin Meriwether.....Montgomery.
Abram Hill Mitchell.....Lee.
Isaac Lenoir Moore.....Montgomery.
Merrill Hastings Moore .....Montgomery.
Alexander Jackson Moseley.....Bullock.
William Boyd McGehee.....Montgomery.
William Louis Noll .....Tennessee.
Carlyle Nisbet.....Georgia.
James Cochran Phelps.....Lee.
James Blackmon Powell.....Bullock.
Shepherd Harrison Roberts.....Montgomery.
Oscar Menderson Schloss.....Morgan.
Wilbur Allen Sellers.....Bullock.
Henry Alexander Skeggs (c).....Morgan.
John Hunt Skeggs.....Morgan.
Matthew Scott Sloan.....Mobile.
Holland McTyeire Smith .....Russell.
Godfrey Rhodes Thomas.....Sumter.
Earnest Walter Thompson.....Lee.
Manly Curry Turpin.....Virginia.
Henry Edward Werner.....Texas.
Leonidas Whorton.....Cherokee.
Gaius Whitfield .....Marengo.
Jere Crawford Williams.....Lowndes.
Edward Houston Wills.....Lee.

FRESHMAN CLASS.

Oliver Hannibal Alford.....Marshall.
Samuel Pitts Anderson.....Russell.
William Warren Askew.....Georgia.
Ralph Calloway Armstrong.....Lee.
Albert Miner Avery.....Florida.
Bennett Gordon Beck.....Georgia.

(c) Conditioned.

Charles Homer Billingsley.....Elmore.
Ellerslie Wallace Bullard.....Calhoun.
Charles Cliffton Brown..(c).....Bibb.
Clyde Allen Collins.....Hale.
Oscar Cunningham.....Limestone.
Gerald Matthews Crenshaw.....Perry.
Pearce Henry DeBardleben .....Lee.
Solon Malone Davis.....Georgia.
Warren Alfred Dewees.....Tennessee.
Paul Metzger Eichelberger.....Calhoun.
Jesse Duncan Elliott.. .....Wyoming.
James Douglas Farley.....Lee.
David Fleming .....Montgomery.
John Sears Francis..(c) .....Jefferson.
Jeremiah Warren Gwinn.....Jefferson.
William Houston Gwinn.....Jefferson.
James Browder Garber.....Hale.
Clifton Duane Haynie .....Lee.
William Tillman Heard.....Lee.
Oscar Lynn Henry.....Marshall.
Franklin Jerome Houston.....Jefferson.
Garrett Newton Hudmon.....Lee.
John Snow Jemison .....Jefferson.
Albert Sidney Johnson.....Colbert.
Collins Johnson.....Missouri.
James Taylor Jones.....Marengo.
Morris Ketchum.....Florida.
James Hartwell King.....Colbert.
James Allen Kyser.....Dallas.
Earnest Linwood Maury.....Choctaw.
Ross Earnest Mattison.....Calhoun.
Roscius Sandwich McMichael..(c).....Georgia.
Fern Wood Mitchell.....Etowah.
Peter Preer Myhand.....Lee.
Henry Bigham Park.....Georgia.
William Marcus Peters.....Perry.
Wallace Powers Pruitt.....Lowndes.

(c) Conditioned.

Daniel Syers Robertson..... Chambers.
Edward Prescott Rutland....(c)..... Lee.
Charles Martin Shepard.... .....Mobile.
Richard Blount Shepard..... .....Mobile.
Julian Cassius Smith.....Macon.
Philip Ware Smith..... .....Calhoun.
Alfred Huntington Stevenson.....Mobile.
Siddons Stollenwerck .....Marengo.
Jonathan Render Thomas. .....Sumter.
Abner Mason Torbert.....Macon.
Elijah Albert Turner.....Lee.
George John Turner.....Florida.
John Morgan Turner.....Lee
Non Dura Ward....(c)..... .....Tallapoosa.
Clifford Noble Wallace.....Elmore.
Mem Creagh Webb.....Marengo.
Walker Dorr Willis.....Florida.
Forney Renfro Yarbrough.....Georgia.
John Eyers Davis Yonge..... .....Florida.

(c) Conditioned.

SPECIAL AND IRREGULAR STUDENTS.

Abbreviations: Ph—Pharmacy; E. & M. E.—Electrical and Mechanical Engineering; C.—Chemistry; Ag.—Agriculture; C. E.—Civil Engineering; M. A.—Mechanic Arts.

James Wilson Bandy.....PH.....Lee.
Milton Columbus Baldridge.... PH.....Madison.
Arthur Bernard Beringer.....Barbour.
Peter Alexander Brannon.....PH.....Russell.
Charles William Brassfield.....PH.....Marengo.
Charles Louis Bragaw.....PH.....Lee.
Mortimer Perry Brown.....Pike.
Walter Leslie Bryant.....PH.....Georgia.
Rufus White Butler.....PH.....Lee.
William James Cameron .....Jefferson.
Charles Newton Carraway.....PH.....Montgomery.
Edwin Weaver Caro.....M. A.....Florida.
William Cruse Coles.....Calhoun.

Harris Hill Cory.....Autauga.
Ramon Eraso.....E. & M. E..Venezuela.
William Bullock Fleming.....Montgomery.
Harry Lavan Fitch.....Wilcox.
John Knox Franklin.....Bullock.
Loren Gary.....Barbour.
Swoope Darrow Gilbert.....E. & M. E..Lauderdale.
James McAnelly Gill.....Madison.
Frank Crouch Green.....E. & M. E..Georgia.
William Hope Haigler.....Montgomery.
Eula Belle Hale.....Lee.
John Dabney Hamilton.....PH.....Marion.
John Albert Hannah.....PH.....Florida.
Ethel Tilman Heard.....Lee.
Bunn Young Hill.....Georgia.
John William Jepson.....E. & M. E..South Carolina.
Walter Eldridge Johnson.....Lee.
William Francis Johnston.....Calhoun.
John Alexander Lanford.....PH.....Sumter.
Robert Paterson Manly.....E. & M. E..Georgia.
George Mathews Marks.....Montgomery.
James Philip Martin.....Lee.
Andrew McCord.....Lee.
Graham Merchant.....E. & M. E..Lee.
Louie Huntington Moore.....Montgomery.
James Crowder Moore.....Lee.
Llewellyn Perry Motley.....Lee.
Robley Charles Munger.....Jefferson.
James William Patton.....Chilton.
Emile Thomas Peddy.....M. A.....Lee.
Morris Pelham.....M. A.....Calhoun.
James Garnett Pruitt.....PH.....Barbour.
Mary Robins Sampey.....Conecuh.
Howard Culver Rush.....M. A.....Mobile.
Peter Sequeira.....M. A.....Nicaragua, C. A.
Lewe Frank Sessions.....Bullock.
Maurice Garbery Shannon.....C.....Jefferson.

Sidney Ewing Simpson.....E. & M. E..Montgomery.
Walter Ellis Sistrunk.....PH.....Elmore.
Henry Bennett Thompson.....PH. .....Lee.
Elijah Smith Weldon.....Elmore.
Charles Finley White.....Jefferson.
William Dunbar Wills.....C.....Lee.

SUB-FRESHMAN CLASS.

John Mangum Buchanan..... .....Lee.
Cecil Battle Brown.....Pike.
George Robinson Bryant.....Baldwin.
Walter Brooks Cawthorn .....Mobile.
Walter Davis Compton.....Pike.
Weedham Lee Drury..... Barbour.
Jerry William Dumas.....Lee.
James William Flanagan.....Lee.
Harry Fannin Gohlson.....Pike.
Bell George Hazard.....Kentucky.
Charles Henry Howle.....Calhoun.
Bartow Elliott Ingram.....Russell.
Emmett Llewllyn Jones.....Calhoun.
Walter Henry Jones.....Pike.
John Fulton Lanier.....Madison.
Frank Runals McElhaney.....Lee.
Frederick Clifton Maddox.....Georgia.
Earnest Linwood Mayberry .....Lee.
William Osborn Mitchell.....Lee.
Edward LeRoy Napier.....Lee.
Stanley Wimbish Napier.....Lee.
Walter Cornelius Oneal.....Sumter.
Walter Gardner Pitts... .....Russell.
James Robert Philips. .....Calhoun.
Joseph William Powers.....Madison.
Albert Wellman Pratt .....Madison.
James Henry Randle.....Bullock.
Samuel Rembert.....Tennessee.
Roy Gustavus Rhodes.....Marengo.
George Washington Smith.....Lee.

Nelson Horatio Romero	Cuba.
Sloss Smith	Jefferson.
Earnest Percy Thompson	Lee.
James Feagin Tompkins	Lee.
Filo Harrison Turner	Florida.
Horace Sanford Turner	Mobile.
Fletcher Peavey Whatley	Montgomery.
Forney Renfro Wright	Lee.
Samuel James Wisdom	Montgomery.

SUMMARY.

Graduates	18
Senior Class	46
Junior Class	63
Sophomore Class	72
Freshman Class	62
Special and Irregular Students	57
Total in College Classes	318
Sub-Freshman Class	38
Total	356

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	254	Geology	42
History	181	Civil Engineering	9
French	39	Electrical Engineering	47
German	37	Mechanical Engineering	45
Latin	157	Biology	18
Mental Science	24	Drawing	174
Political Economy	35	Mechanic Arts	219
Mathematics	266	Military Tactics	301
Chemistry	160	Mineralogy	8
Chemical Laboratory	73	Physical Laboratory	62
Agriculture	108	Physiology	70
Physics	133	Veterinary Science	35
Botany	98	Pharmacy	31
		Bacteriology	10

MILITARY ORGANIZATION.

1898-99.

President,

W. L. BROUN.

Commandant,

COL. B. S. PATRICK.

Surgeon,

J. H. DRAKE.

Battalion Staff.

Cadet Captain I. F. McDONNELL, Assistant to Commandant.
Cadet 1st Lieutenant T. G. BUSH, Adjutant.
Cadet 1st Lieutenant A. H. FEAGIN, Quartermaster.
Cadet Sergeant H. P. POWELL, Sergeant Major.
Cadet Sergeant J. L. BURKE, Sergeant Major.
Cadet Sergeant J. W. SHUFF, Quartermaster Sergeant.

Cadet Captains.

1. I. F. McDONNELL,
2. J. F. DOBBIN,
3. T. W. WERT,
4. C. W. MINGE.

Cadet First Lieutenants.

1. B. DAVIS,
2. J. M. ATKINSON,
3. A. M. BOYD,
4. J. R. PEABODY,
5. J. A WARD,
6. B. E. BROWN,
7. D. TURNER,
8. W. O. SCROGGS.

Cadet Second Lieutenants.

1 H. A. MOON,
2. J. S. GILLILAND.

Cadet First Sergeants.

I. E. H. FOY,
2. F. ASHCRAFT,
3. G. F. BOYD,
4. W. E. KELLEY.

Cadet Sergeants.

1. K. B. McKENZIE,
2. J. J. FLOWERS,
3. R. P. BALDWIN,
4. J. P. ILLGES,
5. A. C. CAMERON,
6. J. H. McGEHEE,
7. R. B. HALL, (Color Sergeant),
8. S. G. FORBES,
9. M. F. KAHN,
10. J. W. BOYD,
11. L. N. DUNCAN,
12. J. S. BLACK,
13. C. W. NIXON,
14. W. L. ANDERSON,
15. H. WARE,
16. S. D. GILBERT,
17. E. M. MASON.

Cadet Corporals.

1. J. D. FOY,
2. S. H. ROBERTS,
3. A. F. JACKSON,
4. M. S. SLOAN,
5. E. H. WILLS,
6. A. C. HANNON,
7. M. H. MOORE,
8. H. A. SKEGGS,
9. O. B. ANDREWS.
10. G. WHITFIELD,
11. A. H. MITCHELL,
12. W. B. MCGEHEE,
13. J. B. POWELL,
14. W. L. GREENE,
15. P. S. HALEY,
16. M. C. TURPIN,
17. B. B. MERRIWETHER.

Cadet Band.

M. THOS. FULLAN, Chief Musican.
A. M. BOYD, Principal Musician.

J. A. WARD,
C. L. BRAGAW,
W. A. DEWEES,
W. J. CAMERON,
F. C. BIVINGS,
M. F. KAHN,

W. A. FRAZER,
J. A. LANFORD,
W. L. BRYANT,
E. H. WILLS,
M. D. KAHN,
R. C. ARMSTRONG.

J. O. RUSH, Drum Major.

REQUIREMENTS FOR ADMISSION.

All applicants for admission should present testimonials of good moral character, and those who come from other colleges must present certificates of honorable dismissal.

To enter the freshman class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography, and History of the United States.

2. English—(a) An examination upon sentences containing incorrect English. (b) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar, and division into paragraphs.

(a) *Reading*. The composition in 1899 will be upon subjects drawn from one or more of the following works in English Literature: (1) Hughes's *Tom Brown at Rugby;* (2) Southey's *Life of Nelson;* (3) Shakespeare's *Julius Cæsar;* (4) Longfellow's *Evangeline;* (5) Scott's *Ivanhoe;* (6) Shakespeare's *Merchant of Venice;* (7) Irving's *Sketch Book;* (8) Macaulay's *Essay on Milton;* (9) Scott's *Marmion;* (10) Dickens's *David Copperfield.*

The candidate will be required to present evidence of a general knowledge of the subject matter, and to answer simple questions on the lives of the authors. This part of the examination is intended to test only a general knowledge of the substance of the books.

(b) *Study and Practice*. This part of the examination presupposes the thorough study of the style of the work, and will be upon *Julius Cæsar* and the *Essay on Milton.*

Preparation and examination on these works will be necessary before the student is classed as regular in any course.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions;

denominate numbers; the metric system; percentage, including interest and discount; proportion; extraction of square and cube roots. (b) Algebra to quadratic equations, one book of geometry.

4. Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Cæsar, in addition to the above subjects.

In pronouncing Latin it is recommended that *ā* be pronounced as in *father*, *ă* as the *a* in *Cuba*; *ē* as in *prey*, *ĕ* as in *men*; *ī* as in *machine*, *ĭ* as in *cigar*; *ō* as in *old*, *ŏ* as in *obey*; *ū* as in *rule*, *ŭ* as in *full*; *j* as *y* in *yard*; *c* always as *k* in *king*; *g* always as *g* in *get*.

For admission to the higher classes, students should be prepared to stand a satisfactory examination in all of the studies of the lower classes, as shown in the courses of study. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on those subjects.

ADMISSION ON CERTIFICATE.

Applicants will be admitted without examination on presenting a certificate from any of the CERTIFICATE SCHOOLS named herein.

The following educational institutions having made application to be correlated to this College and having presented an approved course of study, are hereby declared to be CERTIFICATE SCHOOLS, and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the freshman "class *without examination* upon the certificate of the president or "principal showing definitely that such students have completed satis- "factorily all the studies required for admission, as stated in the cata- "logue, and are otherwise admissible."

The privilege of admitting students to the Sophomore class on

certificate will be granted only to those approved schools that have had a continuous existence for five years or more, and have previously had pupils admitted to that class without conditions.

The following form of Certificate will be used:

I hereby certify that A....., B..... has attended the (*name the school or academy*) for .....years and has studied the following subjects:

in History ..... (*name the books*)
in English ..... (" " ")
in Algebra ..... (*state amount accomplished*)
in Geometry.....(" " ")
in Latin ....(*state books read*)

and having passed a satisfactory examination on these subjects as required in the Catalogue for admission to the.....class, I recommend him for the same.

CERTIFICATE SCHOOLS.

University Military School, Mobile	J D. Wright.
Verner Military Institute, Tuscaloosa	W. H. Verner.
University School, Montgomery	J. M. Starke.
Mt. Willing High School, Mt. Willing	J. D. Garrett.
State Normal School, Jacksonville	J. Forney.
Male Academy, Huntsville	Puryear & Wyatt.
State Normal College, Florence	M. C. Wilson.
Furman Academy, Livington	L. A. Cockrell.
High School, Opelika	J. M. Smallwood.
Union Springs Institute	J. B. Murphy.
University Military School, Clanton	E Y. McMorries.
N. A. Agricultural School, Athens	M. K Clements.
W. Ala. Agricultural School, Hamilton	S. T. Slaton.
Eutaw Male Academy, Eutaw	H. C. Horton.
Boys' High School, Anniston	H. C. Gunnels.
Taylors' School, Birmingham	W. P. Taylor.
Gaylesville High School	John L. Ray.
Carrollton Academy	L. V. Rosser.
Ninth District Agricultural School, Blountsville	W. J. Beeson.
Gadsden High School	I. W. Hill.
Boyd High School, Ramer	B. H. Boyd.
Dadeville High School	A. W. Holstun and J. D. Lane.
Eufaula High School	F. L. McCoy.
Union Springs College	J. M. Sanders.
Montgomery High School	C. L. Floyd.
Calera Academy	C. C. Slaton.

ADMISSION OF YOUNG WOMEN.

The privilege of becoming students in this College is granted by the Trustees to young women of mature mind and character, on the following conditions:

The applicant must be eighteen years of age, and if a candidate for a degree, be able to pass a satisfactory examination in each of the four subjects as named below.

If the applicant is a candidate for admission as a special or irregular student, she must be able to pass a satisfactory examination in two of the subjects named.

(a) In English—Proficiency in spelling and punctuation; Grammar (Lockwood-Whitney); Rhetoric (Lockwood's Lessons and Genung's Outlines of Rhetoric); Scudder's Masterpieces of American Literature; Syle's From Milton to Tennyson.

For requirements in reading in literature see page 32.

(b) In History—Macy's Our Government; Chambers's History of the United States; Myers's General History.

(c) In Mathematics—Arithmetic; Algebra, including quadratic equations, logarithms and series; Plane and Solid Geometry; Plane and Analytic Trigonometry, as in Wentworth.

(d) In Latin—Grammar, including the forms and syntax; Jones's Latin Prose Composition; translation of selections from Cæsar Nepos, Virgil, Cicero's Orations, Cicero's Letters, or the equivalent.

The equivalents of these subjects, as in above text-books may be substituted.

Botany will constitute a required part of the general course for young women who are candidates for a degree.

When admitted, upon complying with the conditions above stated, they may enter upon the study of any subject taught in the College and join any class, for which, upon examination, they may be found, qualified. The only condition imposed will be that they engage in earnest study, and attend the exercises regularly. They will board in the town with private families and attend college only at the hours of their exercises.

The Trustees authorize the Faculty to admit a candidate for a degree at the age of seventeen, provided she is able to comply with all the requirements for admission in the four subjects named and the application meets with its approval.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 13th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the freshman class are admitted to the sub-college department.

They will be advanced to full admission to the Freshman class when they are qualified to pass satisfactorily the required examinations.

Students, upon their arrival at Auburn, will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

Ali students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing, and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of electing studies in the lower classes is not granted to young students nor to their parents. The Faculty will assign a student, on admission, to that class of a prescribed course for which he is qualified; and for special reasons, approved by the Faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age that are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study for which they may be qualified.

A student who does not take all the studies in a class of one of the degree courses, as prescribed in the catalogue, and is permitted to take an irregular course, will be assigned to a member of the Faculty,

who will act as his special adviser, and when his course of study has been approved by the Faculty no other change will be permitted without the endorsement of his adviser.

Regular students who fail to pass satisfactory final examinations in any one study become special students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students, candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

ADMISSION TO HIGHER CLASSES.

At the beginning of each term a student in the sub-freshman class may, on application approved by the Faculty, be examined for admission to the freshman class in history, English, mathematics, or Latin, and if his examination is satisfactory in any subject, he will be admitted to the freshman class in that subject only.

Students who have completed satisfactorily all the studies of the sophomore class, as prescribed in the catalogue, in any one of the regular degree courses, can enter, without condition, the junior class in any course, except in the general course, or the course in pharmacy, in which Latin is required.

Students who are admitted to the junior class from other institutions, on examination in English, Latin, and mathematics, and who have not completed all the studies of the sophomore class, in order to graduate, will be required to complete the course in chemistry and history as taught in the sophomore class.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical, and Natural Sciences, with their applications; Agriculture; Biology; Mechanics, Astronomy, Mathematics; Drawing; Civil, Electrical, and Mechanical Engineering; Physiology and Veterinary Science; Pharmacy; English, French, German, and Latin languages; History, Political Economy; Mental and Moral Sciences.

These studies are arranged in regular courses so as to offer a liberal and practical education as a preparation for the active pursuits of life.

There are five degree courses for undergraduates, each

leading to the degree of Bachelor of Science, (B. Sc.) and requiring four years for its completion.

I. COURSE IN CHEMISTRY AND AGRICULTURE.
II. COURSE IN CIVIL ENGINEERING.
III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.
IV. GENERAL COURSE.
V. COURSE IN PHARMACY.

There are also two partial courses, each requiring two years for its completion:

VI. TWO-YEAR COURSE IN AGRICULTURE.
VII. TWO-YEAR COURSE IN MECHANIC ARTS.

Course I includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture or chemical pursuits.

Course II includes the principles and applications of the sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course III includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged for the profession of electrical and mechanical engineering.

Course IV has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching or in some commercial or professional business.

Course V includes, besides the general education of course IV in the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Courses VI and VII have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, will be awarded a certificate of proficiency in said subject.

Students who complete either of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every candidate for a degree will be required to stand this special examination during the second *term* of the Senior year.

Declamation and themes or orations are required of all regular students pursuing courses leading to a degree.

POST-GRADUATE COURSES.

The post-graduate degrees are—MASTER OF SCIENCE, MINING ENGINEER, CIVIL ENGINEER, ELECTRICAL AND MECHANICAL ENGINEER AND PHARMACEUTICAL CHEMIST.

A more extended post-graduate course of study may be taken by a graduate of this College or of any other institution of equal grade. The completion of a course which leads to a post-graduate degree requires one year's residence at the College, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the Faculty.

The candidate must also present to the Faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination at the close of each term on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the Faculty.

The subject of the thesis must be submitted to the Faculty for ap-

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proval prior to January 1st, and the thesis given to the professor by April 1st.

Applicants for post-graduate degrees are subject to the general regulations as other students. but are exempt from all military duty.

Resident graduates that are not candidates for a degree, are permitted to matriculate and prosecute the studies in any department of the College.

The following courses are prescribed for the degrees named:

Mining Engineer.—Students who have received the degree of B. Sc. in engineering, civil, or electrical and mechanical, or who have prosecuted an equivalent course of study, can enter upon a special course of mining engineering, which includes the following subjects of study:

Industrial Chemistry, Analytic Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, with practical work in the field, Mining Machinery with the applications of steam and electricity to the various operations connected with the exploitation of mines

The student, if a candidate for a degree, will also be required to prosecute the necessary studies in that course of engineering in which he has not graduated.

This course of study will be under the charge of the professors of geology, chemistry, civil, electrical and mechanical engineering.

Civil Engineer.—Civil Engineering, Mathematics, Analytical Mechanics.

Electrical and Mechanical Engineer.—Electrical Engineering, Mechanical Engineering.

Pharmaceutical Chemist.—Pharmacy and Chemistry.

Master of Science.—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the Faculty, a student may devote his entire time to work in one department.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

SPECIAL ONE-YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field,

stock-yard, dairy, garden, orchard, vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of scientific agriculture.

PHOTOGRAPHY.

During the session there will be given by Professor Mell a course of twelve lectures on photography. This course will be elective, and the instruction will be open to any student that may desire to learn how to make pictures. It will be necessary for each student to provide himself with an outfit that will cost from $11.50 to $16.00.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this Institute, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CHEMISTRY.
II. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.
III. AGRICULTURE.
IV. BOTANY.
V. MINERALOGY.
VI. BIOLOGY.
VII. TECHNICAL DRAWING.
VIII. MECHANIC ARTS.
IX. PHYSICS.
X. ELECTRICAL ENGINEERING.
XI. MECHANICAL ENGINEERING.
XII. PHYSIOLOGY AND VETERINARY SCIENCE.
XIII. PHARMACY.

NOTE.—Special work in English or History may be taken by students in the general course as a substitute for laboratory work.

GYMNASIUM AND ATHLETIC FIELD.

The gymnasium is situated at the west end of the athletic and drill grounds, and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures.

It is equipped with Spalding's gymnasium apparatus and is open to all students at stated hours, under the care of an officer.

The athletic field has a quarter-mile cinder track and ample space for football, baseball, and general athletics.

DISCIPLINE.

The government of the College is administered by the President and Faculty, in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study and punctuality in attendance on recitations and all other duties, are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using, or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainment, or game, without previously obtaining the consent of the Faculty.

No cadet will be permitted, without the approval of his parent or guardian, to take part in a public game of football; nor will permission be given for any athletic game, to a student deficient in his studies.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the Senior class are exempt.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This Association is regularly organized and has a well furnished room on the first floor of the main building set apart for its exclusive use. Through its weekly meetings it exerts a wholesome Christian influence among the students.

Students are advised to unite with the Association when they enter the Institute.

The ladies of the different churches in Auburn, have recently formed an Auxiliary association to the Y. M. C. A. of this Institute Assisted by members of the Faculty, they will hold monthly a joint service of praise in the College chapel and will provide special lecturers for the occasion.

They have also undertaken to build a special hall for the use of the Association, and will solicit subscriptions for that purpose.

The following are the officers:

J. M. ATKINSON, President.
CHAS. WHITE, Vice-President.
A. F. JACKSON, Treasurer.
J. R. RUTLAND, Corresponding Secretary.
H. H. CORY, Recording Secretary.
M. A. BEESON, Librarian.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide water. By statute of the State, the sale of spirituous liquors aud keeping saloons of any kind are forbidden.

BOARDING.

The Institute has no barracks or dormitories, and the students board with families in the town of Auburn, and thus enjoy all the protecting and beneficial influence of the family circle.

I.—COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
3. Drawing.	3. Drawing.	3. Drawing.
2. Physiology.	2. Physiology.	2. Physiology.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y,
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
4. Botany (Lab'y).	4. Botany (Lab'y).	4. Botany (Lab'y).
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
2. Clinical Lab'y.	2. Clinical Lab'y.	2. Clinical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy (c).	2. Political Economy.
2. Mental Science (d).	2. Mental Science (d).	2. Mental Science (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
5. Biology.	5. Biology.	5. Biology.
2. Agricultur'l Ch'm'try	2. Agricultur'l Ch'm'try.	2. Agricultur'l Ch'm'try.
1. Military Science.	1. Military Science.	2. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	1. Veterinary Science.	2. Veterinary Science
2. Clinical Lab'y.	2. Clinical Lab'y.	2. Clinical Lab'y.

(a) Begins March 1st. (b) Also Practical Agriculture.
(c) Begins Feb. 15th. (d) German may be substituted.

II.—COURSE IN CIVIL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture (b).	2. Agriculture (b).	2. Agriculture (b).
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French, or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y, Mech. Arts (c).	6. Lab'y, Mech. Arts (c).	6. Lab'y, Mech. Arts (c).
1. Field Work, Engin'g.	2. Field Work, Engin'g.	2. Field Work, Engin'g.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature(d).	2. Political Economy (d).	2. Political Economy (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics	3. Mathematics.	3. Mathematics.

(a) Begins March 1st.
(b) For Agriculture may be substituted Physical Laboratory.
(c) Or Mineralogy.
(d) For Eng. Lit. and Pol. Econ. may be substituted French or German.

5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science	1. Military Science.	1. Military Science.
4. Mech. Eng., Lab'y. Field Work, Engin'g.	4. Mech. Eng., Lab'y. Field Work, Engin'g.	4. Mech. Eng., Lab'y. Field Work, Engin'g.

III.—COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week. In freshman and sophomore classes the same studies are prescribed as in Course II in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French. or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics
5. Mathematics.	5. Mathematics.	5. Mathematics.
4. Electrical Engin'g.	4. Electrical Engin'g.	4. Electrical Engin'g.
3. Mech. Engineering.	3. Mech. Engineering.	3. Mech. Engineering.
4. Mechanical Drawing.	4. Mechanical Drawing.	4. Mechanical Drawing.
4. Electrical Lab'y.	4. Electrical Lab'y.	4. Electrical Lab'y
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. Eng. Literature (a).	2. Political Economy (a).	2. Political Economy (a).
2. Physics.	2. Astronomy.	2. Astronomy,
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Electrical Engin'g.	5. Electrical Engin'g.	5. Electrical Engin'g
5. Mech. Engineering.	5. Mech Engineering.	5. Mech. Engineering.
2. Electrical Designing.	2. Electrical Designing	2. Electrical Designing.
6. Electrical Lab'y.	6. Electrical Lab'y	6. Electrical Lab'y.
4. Mech. Eng Lab'y.	4. Mech Eng Lab'y.	4. Mech. Eng. Lab'y.
1. Military Science.	1. Military Science.	1. Military Science.

(a) French or German may be substituted.

IV.—GENERAL COURSE.

The numerals opposite the subjects indicate the numbers of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
3. Latin.	3. Latin.	3. Latin.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y Work (b).	6. Lab'y Work (b).	6. Lab'y Work (b).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy (c).	2. Political Economy.
2. Mental Science.	2. Mental Science.	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2 Latin.	2. Latin.
1 Military Science.	1. Military Science.	1. Military Science.
6 Lab'y Work (b).	6. Lab'y Work (b).	6. Lab'y Work (b).

(a) Begins March 1st.

(b) The student may elect the laboratory of any department for which he may be qualified.

(c) Begins February 15th.

V.—COURSE IN PHARMACY.

The numerals opposite the subjects indicate the number of hours per week

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art. Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany. (a)
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. Physics.	3. Physics.	3. Physics.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Botanical Lab'y.	4. Botanical Lab'y.	4. Botanical Lab'y.
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
9. Pharmaceutical Lab.	9. Pharmaceutical Lab.	9. Pharmaceutical Lab.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Biology.	5. Biology.	5. Biology.
7. Toxicology.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Pharmacy.	4. Pharmacy.	4. Pharmacy.
9. Pharmaceutical Lab.	9. Pharmaceutical Lab.	9. Pharmaceutical Lab.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Science.	1. Military Science.	1. Military Science.
3. Materia Medica.	3. Materia Medica.	3. Bacteriology.

(a) Begins March 1st.

VI—TWO-YEAR COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics,	5. Mathematics.	5. Mathematice.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	5. Drawing.	3. Drawing.
12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

VII—TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agricult're.	2. Practical Agricult're.	2. Practical Agricult're.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry,
4. Agriculture.	4. Agriculture.	4. Agriculture.
2. Physiology.	2. Physiology.	2. Physiology.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
12. Practical Agricult're.	12. Practical Agricult're.	12. Practical Agricult're.
3. Military Drill.	3. Military Drill.	3. Military Drill,

SCHEDULE OF EXERCISES.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
I. 8–9	4. Algebra. 3. Latin. 1. and 2 Drawing. 1. Elec Engine'r'g. 2. Mec Engine'r'g. 1. Biology. 1. German.	3. Physiology. 4. Geometry. 3. Latin. 2. German. 1 and 2 Drawing. 2. Botany. 1. Elec. Engine'r'g 2. Mec. Engine'r'g 1. Mental Science.	4. Algebra. 3. Latin. 1 and 2 Drawing 1. Vet. Science. 1. Elec Engine'r'g. 1. German.	4. Geometry. 3. Latin. 2. German. 1 and 2 Drawing. 2. Botany. 1. Mental Science. 1. Elec Engine'r'g.	4. Algebra. 3. Latin. 1 and 2 Drawing. 1. Veternary Sci. 1. Elec Engine'r'g 1. German.	Exercises in Elocuti'n.
II. 9–10	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Latin. 1. Calculus. 1. Biology. 2 Elec Engine'r'g	4 History. 3. Agriculture. 2. Civ. Engineer'g. 2. Botany. 1. Physics. 2. Elec. Engine'r'g	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Latin. 1. Calculus. 2. Vet. Science. 2. Elec Engine'r'g	4. History. 3. Agriculture. 2. Civ. Engine'r'g. 2 Botany. 1. Physics. 2. Elec Engine'r'g	4. English. 3. Chemistry. 2. Civ. Engine'r'g 2. Latin. 1. Calculus: 2. Mech. Engin'r'g 2. Vet. Science.	Military Drill.
III. 10–11	3. English. 2. Physics. 1. Civ. Engine'r'g. 1. Biology. 1. Latin. 1. Mec. Engine'r'g.	3. History (1, 2). 3. Botany (2, 3). 1. Biology. 1. Civ. Engineer'g 4. English. 1. Mec. Engine'r'g 2. French. 2. Mec. Drawing.	3. English. 2. Physics. 1. Latin. 1. Civ Engineer'g. 1. Biology. 1. Mech Engin'r'g.	3. History (1, 2). 3 Botany (2, 3). 1. Civ. Engine'r'g 4. English. 1. Mech Engin'r'g 2. French.	3. English. 2. Physics. 1. Civ. Engineer'g. 4. History. (3). 1. Mech. Engin'r'g	Mechanic Arts. Chemical Laboratory. Electric Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.

SCHEDULE OF EXERCISES—Continued.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
IV.	4. Physics (1, 2).	4. Latin. 3. Drawing.	4. Physics (1, 2). 4. Latin (3). 3. History (1, 2).	4. Latin.	4. Physics (1, 2).	
11–12	4. Agriculture (3). 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. English (1, 2) 1. Pol. Econ.(2, 3). 4. Mechanic Arts.	2. Agriculture. 2. Mathematics. 1. Chemistry. 1. French.	3. Botany (2, 3). 2. Mathematics. 2. Chemistry. 1. English (1, 2). 1. Political Economy (2, 3). 4. Mechanic Arts	2. Agriculture. 2. Mathematics. 1. Chemistry 3. Physiology. 1. French.	4. Agriculture (3). 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry 1. Military Science 4 Mechanic Arts	3. Mechanic Arts. Chemical Laboratory. Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.
V. 12–1	4. Drawing. 3. Mathematics. 2. English. 4. Mechanic Arts. 1. Elec. Designi'g. 1. French.	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 4. Mechanic Arts. 2. German 1. Elec Designing 2 Anal Chemist'y.	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 4. Mechanic Arts. 1. Elec. Designing. 2. Milit'ry Tactics.	3. Mechanic Arts. Chemical Laboratory. Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering
P.M.	4. Mechanic Arts.	3. Mechanic Arts. 2. Mineralogical Laboratory.	4. Mechanic Arts.	3. Mechanic Arts. 2. Mineralogical Laboratory.	4. Mechanic Arts.	
VI, VII. 2–4	3. Field Work Agr. 1 & 2 Laboratory Chemistry. 1 & 2 Field Work. Engineering. 1 & 2 Mach Work Elec. Lab. Work. Physical Labor'y.	Military Drill (*). 1. Mech. Lab'tory. Elec. Lab'y Work. 1 and 2 History.	3. Field Work, Agr. 1 & 2 Laboratory. Chem 1 & 2 Field Work, Engineering. 1 & 2 Mach Work. Ex'cis. in Elocut'n Elec. Lab. Work. Physical Labor'y.	Military Drill (*) 1. Mech Labor'y. Elec. Lab'y Work 1 and History.	3. Field W'rk Agr. 2 French. 1 & 2 Lab. Chem 1 & 2 Field W'rk, Engineering. 1 & 2 Mach W'sk. Ex'cis in Elocut'n Elec Lab Work. Physical Labor'y.	

Chapel services daily at 7:45 a. m.
Numbers prefixed denote classes—1 denotes senior, 2 junior, etc. Numbers affixed—(1), (2), (3),—denote terms.
*From 4:30 to 5:30 p. m.

DEPARTMENTS OF INSTRUCTION.

PHYSICS AND ASTRONOMY.

PRESIDENT BROUN.

PROFESSOR McKISSICK.

The instruction is given by recitations from text-books and lectures, illustrated by experiments. The first part of the course is occupied with elementary rational mechanics, treated graphically.

This is followed by a full discussion of molecular mechanics; while due prominence is given to principles, frequent reference is made to the applications of science.

The studies of the junior class include the properties of matter, units of measure, force, work, energy, kinematics, kinetics, mechanic powers, friction, pendulum, molecular forces of solids, liquids and gases, theory of undulations, heat, electricity, magnetism, etc.

The studies of the senior class include light, and astronomy.

Post-graduate Course. This includes the study of analytical mechanics, and requires a knowledge of differential and integral calculus.

TEXT-BOOKS.

Atkinson's Ganot's Physics, Young's Astronomy, Berry's History of Astronomy, Bowser's Analytic Mechanics.

PHYSICAL LABORATORY.

INSTRUCTOR H. H. KYSER.

The laboratory work includes courses for the sophomore and freshman classes, and is so arranged as to begin with a study of the systems and units of measurements and to conclude with simple experiments in heat.

The student is required to ascertain experimentally various physical laws, hence in all exercises there is something to measure. From these measurements he is required to find the law connecting the quantities involved. Results of experiments are to be entered, in tabular form, together with methods, diagrams, etc., in a laboratory record-book, which each student is required to prepare. At the close of each week this book is criticised and graded according to its accuracy and neatness.

FRESHMAN COURSE.

First Term. (*a*) Elementary physics (mechanics and heat).
Second Term. (*b*) Elementary graphical statics (continued in sophomore year).
Third Term. (*c*) Systems and units of measurements.
(*d*) Simple measurements of length, surface, volume and weight.

SOPHOMORE COURSE.

First Term. (*a*) Simple measurements and designing verniers and micrometers.
(*b*) Elementary graphical statics (*c*) Forces, moments and work
Second Term. (*d*) Simple machines and friction (determining mechanical advantages, loss, efficiency, law, etc).
(*e*) Pendulum and gravity. (*f*) Elasticity.
Third Term. (*g*) Liquids. (*h*) Density and specific gravity. (*i*) Gases. (*j*) Heat.

The laboratory is equipped with instruments of foreign and American manufacture, such as verniers, micrometers, cathetometers, a horizontal comparator, a Kater's reversion pendulum, balances, etc., and with all apparatus necessary to perform from 10 to 20 experiments under each of the above named groups.

MATHEMATICS.

PROFESSOR SMITH.

The general course for the first two years embraces the *first year*, algebra, through logarithms, and geometry, six books; *second year*, algebra, solid geometry, plane and spherical trigonometry, surveying, mensuration.

Two objects are sought to be attained: first, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given to the sophomore class in farm, town and government land surveying, dividing land, mapping, plotting, and computing areas, etc.; also in the theory, adjustment and use of instruments.

The class in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

Mensuration includes an extended course in measurements of heights and distances, plane, rectilinear, and curvilinear figures, surfaces and volumes.

The completion of this course, common to all students, lays the foundation for the pure and applied mathematics of the mechanical and engineering courses. Analytical geometry, descriptive geometry, and calculus are pursued in the mechanical and engineering courses. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of the principles and formulas.

TEXT-BOOKS.

Wentworth's Algebra, Wenthworth's Geometry, Wentworth's Trigonometry and Surveying, Wentworth's Analytical Geometry, Faunce's Descriptive Geometry, Nicholson's Calculus, Johnson's Differential Equations, Osborne's problems, Peck's Determinants.

GEOLOGY AND BOTANY.

PROFESSOR MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other



BOTANICAL LABORATORY.

natural deposits of minerals in the State. Mineral springs, the origin of ore deposits, and the geological relations of soils are carefully studied.

There is also a course of advanced work in practical geology for post-graduate students. This subject is pursued by applicants for the degrees of master of science and mining engineer.

The junior class in civil engineering studies mineralogy through the entire session. This work consists of a thorough course in blow-pipe analysis of the ordinary minerals, and lectures upon crystallography, with instruction how to measure crystals and determine the physical constants of minerals. An effort is made to familiarize the student with all the economic ores and the rocks entering into the composition of soils.

Botany.—The students of the sophomore class begin the study of botany the first of March, and continue it through the session. Analytical work is made an important feature. This class is provided with plants from the fields, and taught how to determine their specific names. The work is sufficiently exhaustive to enable the student, after completing the course, to name any of the ordinary weeds and grasses that he will encounter in this section.

In the junior class, in the course of chemistry and agriculture, two terms are devoted to systematic and structural botany, and to advanced laboratory work with the microscope in the preparation of specimens showing plant structure; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microscopes of the most improved patterns, and all necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students.

The third term is devoted to the study of the physiol-

ogy of plants in order to understand the functions of the various organs after completion of the work in the histological laboratory.

FACILITIES FOR WORK.

Geology.—The department is equipped with models of Mount Shasta, the earthquake of 1887 in Japan, glass crystals for teaching crystallography; charts and maps of the geology of America and Europe; Colt's lantern complete, with oil, oxy-hydrogen and automatic electric lamps; a large assortment of fine lantern slides representing geological formations in this country and abroad; well equipped mineralogical laboratory for thirty students, supplied with a collection of representative minerals; and models of crystals

Botany.—The facilities for teaching this subject are as follows; Auzoux's clastic models of seeds and flowers; a large collection of pressed plants of Alabama and other sections. mounted and catalogued. There is also a laboratory for practical work in botany equipped with slate-topped tables for twenty students; dissecting and compound microscopes by Zeiss, Leitz, and Bausch & Lomb; projection microscopic apparatus; microtomes by King and Bausch & Lomb; all the necessary glass ware and smaller dissecting instruments required in a well equipped laboratory The Zeiss compound microscope used by the professor for experiment work in connection with the station is supplied with Abbe's illuminating apparatus, slide changers, Abbe's camera lucida, polarizers, apochromatic objectives (16 mm, 8 mm, 4 mm, and homogeneous immersion), oculars (2, 3, 8, 12, 18,) an 1 photographic eye-piece with micrometer. This laboratory is well lighted with gas and electricity and with a good exposure for ample sunlight.

In connection with the department there is a photographic dark room and an excellent photographic outfit, consisting of cameras varying in size from 4 x 5 to 6½ x 8½ inches; Bausch & Lomb's professional photo-micro camera extending to eight feet; Zeiss's anastigmat photographic lens, 6½ x 8½, fitted with Bausch & Lomb's diaphragm shutter, and Zeiss's wide angle lens, 6½ x 8½, all mounted in aluminum; Clark's lens fitted with diaphragm shutter; Darlot lens, 4 x 5; the accessory apparatus and chemicals required for first class work in photography.

The students have access to the botanical garden where experiments in grass culture and many other plants of interest to the farmer are conducted by the professor.

TEXT-BOOKS

LeConte's Geology, Williams's Practical Geology, Tarr's Economic Geology, Dana's Mineralogy, Gray's Botany, Nelson's Herbarium and Plant Descriptions, Laboratory Guide, and notes of lectures.

CIVIL ENGINEERING AND DRAWING.

PROFESSOR LANE.

CIVIL ENGINEERING

The special studies in this department begin in the junior class, and require a good knowledge of algebra, geometry, trigonometry, and analytical mechanics. They are as follows:

Junior Class—Simple, compound, reversed and parabolical curves, turnouts and crossings, leveling, gradients, setting slope stakes, etc.

Special attention will be paid in this class to the location, construction, drainage and maintenance of country roads; and the various pavements and foundations for the same.

Senior Class—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought iron, steel and other metals; limes, cements, mortars and their manufacture; paints and other preservatives; classification of strains and a general mathematical discussion of same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds, their construction and strains determined mathematically and graphically; common roads, their coverings, location and construction of railroads; navigable, irrigation and drainage canals; River and sea-coast improvements.

Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior Class.—Henck's Field Book for Railway Engineers and Byrne's Highway Construction.

Senior Class—Wheeler's Civil Engineering and Von Ott's Graphic Statics.

DRAWING.

All of the students of the freshman and sophomore classes are required to take drawing; but only the students in civil engineering in the junior and senior classes.

The freshman class is taught linear and free-hand drawing. The sophomore class is instructed in the principles of orthographic and isometric projections, shades shadows, perspective and tinting. In the junior class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and tinting; also sketches of tools and machines, plans and elevations and cross-sections of buildings, and blue prints. The senior class makes topographical drawings, and drawings of machines, roofs, bridges, etc., to different scales, and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Freshman Class.—Kitchener's Geometrical Note Book, Thorne's Junior Course in Mechanical Drawing, and Davidson's Model Drawing.

Sophomore Class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior Class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, Plates belonging to the College, Keuffel & Esser's Alphabet.

Senior Class.—French, English and American plates belonging to the College, Keuffel & Esser's Alphabet.

ENGLISH AND POLITICAL ECONOMY.

PROFESSOR THACH.

OBJECTS AND METHODS.

In this department the students pursue a systematic course in the English language and literature.

Language is the avenue of approach to all knowledge; the interpretation of words is the fundamental process in education of whatsoever kind. A full course in English is, therefore, considered especially important in the technical courses of study that do not include the ancient classics. Accordingly, the course of English is continued throughout the four years of the college curriculum, three hours a week, and is made obligatory upon all students, with the exception of those pursuing the first two years of the course in Latin. In this extended drill in the grammar and literature of the English language, the endeavor is made to afford a training somewhat equivalent to the ordinary course in the classical languages.

In view of the ill preparation in languages, especially in their mother tongue, exhibited by many of the candidates for admission to the freshman class, it is deemed advisable, for the sake of honest work, to devote a portion of the first year to grounding such students in the principles of grammar.

Especial attention is given to the study of the writings, themselves, of leading English anthors, since direct contact with literature is considered more profitable than information merely *about* literature.

All students before classed as regular in any course leading to a degree must conform to all the requirements in English for admission as set forth on page 32.

For requirements as to thesis and as to proficiency in English for certificates and degrees see page 39.

Declamation and themes (or orations) are required of *all regular* students. For details see below.

COURSE OF STUDY.

Freshman Class.—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied; study of American authors: Irving Hawthorne, Holmes, Poe, Bryant, Longfellow.

Swinton's English Grammar, Lockwood's Rhetoric, Kellogg & Reed's English Language.

Sophomore Class.—Three hours a week; study of style, analysis of selections of prose and poetry, frequent essays on historic and literary themes.

Carpenter's Rhetoric, Genung's Rhetorical Analysis, Syle's From Milton to Tennyson.

Junior Class.—Three hours a week; lectures on the history of English literature, critical study of English classics, essays.

Pancoast's History of English Literature; Palgrave's Golden Treasury: Macaulay, Carlyle, DeQuincey, etc.

Senior Class.—Two hours a week, first term. Principles of Criticism, Shakespeare's Julius Cæsar, Hamlet, Dowden's Shakespeare, etc.

THEMES AND ORATIONS.

Theory without practice is as fruitless in the study of English as in any other department of study. Practical work is indispensable to the successful teaching of English.

Besides numerous brief papers, illustrative of the subject matter of the text-books, set themes or orations are *required of all students:*—For the freshman class, *ten* themes a year; *ten* for the sophomore; for the senior and junior classes, *three* orations each.

DECLAMATION.

The old practice of committing pieces to memory for "speaking" is cultivated as a means, both of training in the art of thinking on the feet, and of storing the mind with the diction of finished specimens of English style.

The sophomore class is heard weekly throughout the year in sections of ten, once for an hour and a half in rehearsal, afterwards in the study hall before the body of students.

The senior and junior classes also deliver their orations in public.

PHILOSOPHY AND POLITICAL ECONOMY.

The entire senior class pursues the study of intellectual science, twice a week, through the year; and political economy twice a week, during the last two terms. The instruction in this department is by lectures in combination with text-books.

Intellectual Science.—Psychology defined. Value in relation to moral culture, education, and Natural Sciences. The relation of the soul to matter. The arguments of the Materialist. Counter arguments The Faculties of the Soul The nature of Consciousness. Sense perception. Fancy. Imagination. Nature of Conceptions. Language Judgment. Reasoning Deduction. Induction, etc. *Porter's Intellectual Science.*

Political Economy.—Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades-union; co-operation; *money*: credit; functions of government; taxation; tariff; education, etc. *Lectures by Professor.*



CHEMICAL LABORATORY (INTERIOR).

A Post-graduate Course has also been established in English. The following courses have been given:

(1) *Shakespeare.*—Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Part I. Richard III, King John.

(2) *Dryden—Poetical Works* (Christie); *Essay of Dramatic Poesy* (Thomas Arnold); *Essay on Satire*, etc., (Yonge); Saintsbury's *Life of Dryden.*

Pope—Poetical Works (Ward); *Satires* (Pattison); Stephen's *Life of Pope*, Gosse's *From Shakespeare to Pope* and *18th Century Literature.*

(3) *English Literature of the Eighteenth Century:* Addison, Pope, Gray, Goldsmith, Burns, Cowper Burke.

(4) *American Literature:* Longfellow, Lowell, Poe.

CHEMISTRY.

PROFESSOR B. B. ROSS.

Instruction in this department embraces—

1. A course of lectures in general chemistry.
2. A course of lectures in industrial chemistry.
2. A course of lectures in agricultural chemistry.
4. Systematic laboratory work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in general chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland; Remsen, Cooke's Chemical Philosophy, Chemical Journals.

2. Lectures on industrial chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the reduction of ores, the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams.

REFERENCE BOOKS.

Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Percy's Metallurgy, Sadtler's Industrial Organic Chemistry.

3. Course in agricultural chemistry: This consists of lectures on chemistry in its applications to agriculture (two per week), and includes a thorough discussion of the origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist.

REFERENCE BOOKS.

Johnson's How Crops Grow and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

4. The course of systematic laboratory work: This course of practical work in the laboratory is carried on in connection with each course of lectures, and embraces the practical operations of chemical analysis and synthesis, being varied somewhat to suit the individual object of the student.

The laboratories which are open from 9 A. M. to 5 P. M., during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation, in the qualitative and quantitative analysis of soils, fertilizers, feed stuffs, sugar products, minerals, mineral waters, technical products, etc., and in the method of prosecuting chemical researches. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles, and the common re-agents and apparatus used in qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

In addition to the analytical work above described, it is designed to give during the session a short course in electro-plating. Practical instruction in the electro-deposition of nickel, silver, gold, etc., upon other metals will be given, and, in addition, the application of electrolysis to chemical analysis will be studied both theoretically and practically.

BOOKS USED.

In qualitative analysis—Jones's Fresenius Plattner.

In quantitative analysis—Fresenius, Sutton, Rose, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying.

In agricultural chemical analysis—Official methods of the Association of Agricultural Chemists, Wiley's Principles and Practice of Agricultural Analysis.

CHEMICAL LABORATORY.

[For description of the building see page 14.]

The chemical apparatus recently purchased for the laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually

supplied to first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, four short-arm Becker balances of latest pattern, Bunsen spectroscope, Zeiss microscope, and other instruments for delicate and accurate work.

HISTORY AND LATIN.

PROFESSOR PETRIE.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Constant practice in map drawing is insisted on in order to give precision to the geographical knowledge acquired. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library.

In the freshman class, the subjects studied are the United States, Alabama, and England. The first term (two hours per week) is devoted to the history and government of the United States, the second term (two hours per week) to Alabama, and the third term (three hours per week) to the history of England.

In the sophomore class (three hours per week until March) the subject studied is general European history.

In the junior and senior classes opportunity for special historical work is given to those students of the general course who may elect it instead of laboratory work. The work in 1899–1900 will be in American and English history, social, political and constitutional.

The work will be partly by lectures; but students will also investigate in the library, under the direction of the professor, topics connected with the lectures and will report to the class the results of their research. These reports will be made the basis of general discussion. A series of lectures will be given from time to time on current foreign events, and on important points in recent history.

TEXT-BOOKS.

Freshman Class.—Cooper, Estill & Lemmon's History of the United States, Thorpe & McCorvey's Civil Government in the United States and Alabama, Montgomery's English History.

Sophomore class.—Myers's General History.

Junior and Senior classes.—Hart's Formation of the Union, Woodrow Wilson's Division and Reunion, Green's History of England.

LATIN.

The objects kept in view in this department are: an accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put into Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

For the benefit of students who do not study the Latin language a series of popular lectures will be given upon the great Latin writers. Especial emphasis is laid on proficiency in writing Latin exercises and in translating Latin prose at sight.

TEXT-BOOKS.

Freshman's Class.—Grammar, Exercises, Nepos, Sallust.

Sophomore Class.—Cicero, Allen & Greenough's Grammar, Exercises.

Junior Class.—Virgil, Horace, A. & G.'s Grammar, Exercises, Allen's History of Rome, Wilkins' Roman Antiquities.

Senior Class.—Livy, Tacitus, Wilkins's Latin Literature, Exercises.

MODERN LANGUAGES.

PROFESSOR C. H. ROSS.

The following regular courses are given in French and German:

French—First Year: Three recitations a week. During this year the principal object is to acquire a knowledge of the elements of grammar and a correct pronunciation, together with a facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year almost the same line of work is pursued as that begun in the previous year. More difficult and varied French is read, and instruction is given upon the laws of grammar, the construction of the language, and the history of the literature. Special attention is given to sight translation.

German—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

TEXT-BOOKS.

FRENCH—*First Year:* French Principia, Pts. I & II; Jules Verne's Michel Strogoff, Rogers's Sight Reading in French.

Second Year: Feuillet's Le Roman d'un Jeune Homme Pauvre, Dumas' La Tulipe Noire; French Composition.

GERMAN—*First Year:* Harris's German Lessons; Super's Elementary German Reader, Zschokke's Der Zerbrochene Krug.

Second Year: Schiller's Ballads, Hauff's Das Kalte Herz; Bernhardt's German Composition.



ELECTRICAL BUILDING.

ELECTRICAL ENGINEERING.

PROFESSOR McKISSICK.

The students in this course will study English, French, or German, physics, mathematics, etc., as now prescribed for the course of civil engineering in the junior and senior years; and, in addition thereto, will prosecute their studies in electricity and mechanics, as herein prescribed.

JUNIOR YEAR.

Four hours a week for the entire session are devoted to the studies of the principles of electricity and magnetism. The student is made familiar with the theoretical principles by experiments, illustrations, recitations, and lectures.

LABORATORY WORK.—Four hours per week are given to work in the laboratory. This includes management of batteries, construction of instruments, electro-plating, electrical measurements, verification of the principles upon which the measurements of current, electromotive force and resistance are based, etc.

TEXT-BOOKS.

Ayrton's Practical Electricity, Stewart and Gee's Practical Physics, Nichol's Laboratory Manual, Vol. I.

SENIOR YEAR.

In the senior year five hours per week are devoted to theoretical instruction in electricity and magnetism, supplemented by a course of lectures and practical demonstration on the applications of electricity to lighting, electric railways, electrical transmission of energy, polyphase currents, electrical welding, etc.

Encouragement is offered to advanced students for conducting original investigations, and opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students in connection with their experimental work.

LABORATORY WORK.—Six hours per week are devoted to practical laboratory work, electrical measurements, relation of electrical currents to heat and mechanical work, care and tests of dynamo and motors, calibration of voltmeters, ammeters and watt-meters, electric lighting, management and care of accumulators, energy consumed in lamps, adjustment and care of arc lamps, proper wiring of buildings, the application of electricity to street railways, magnetic measurements, tests of transformers and alternating motors, etc.

DRAWING AND CONSTRUCTION.—Two hours per week in the senior year are devoted to the design and construction of electrical machinery. The student is required to make original designs of dynamos, motors, transformers, etc.

TEXT-BOOKS.

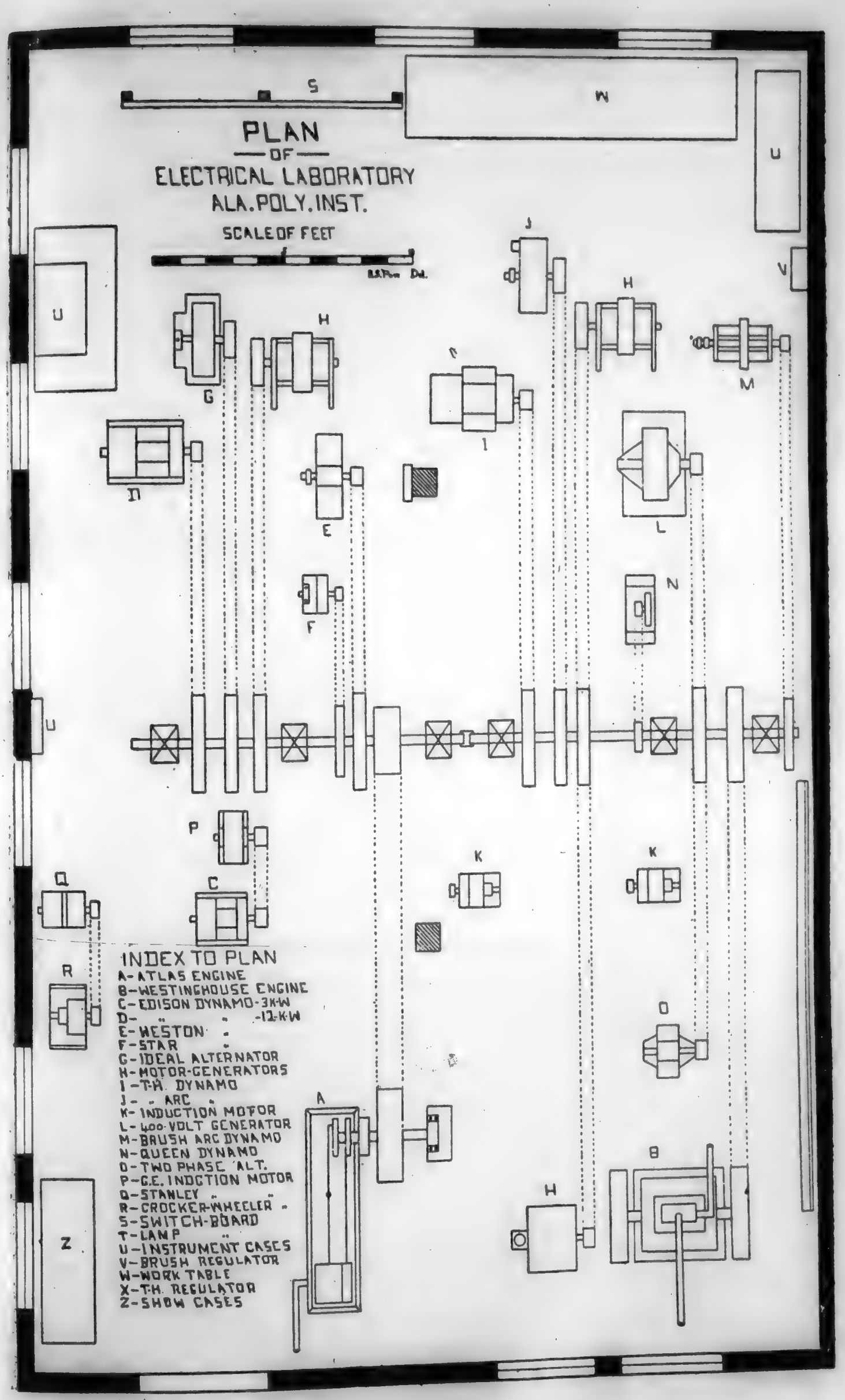
Thompson's Dynamo Electric Machinery, Bell's Power Transmission, Nichol's Laboratory Manual, Vol. II.

POST-GRADUATE COURSE.

This includes advanced study and laboratory work in alternating currents.

REFERENCE BOOKS.

The Dynamo by Hawkins & Wallace, Alternating Currents by Jackson, Principles of the Transformer by Bedell, Dynamos, Alternators and Transformers by Kapp, Alternating Current Phenomena by Steinmetz.


PLAN
OF
ELECTRICAL LABORATORY
ALA. POLY. INST.
SCALE OF FEET
INDEX TO PLAN
A-ATLAS ENGINE
B-WESTINGHOUSE ENGINE
C-EDISON DYNAMO-3K-W
D- " - -12-K-W
E-WESTON -
F-STAR -
G-IDEAL ALTERNATOR
H-MOTOR-GENERATORS
I-T-H. DYNAMO
J- - ARC -
K-INDUCTION MOTOR
L-400-VOLT GENERATOR
M-BRUSH ARC DYNAMO
N-QUEEN DYNAMO
O-TWO PHASE ALT.
P-G.E. INDCTION MOTOR
Q-STANLEY " "
R-CROCKER-WHEELER -
S-SWITCH-BOARD
T-LAMP "
U-INSTRUMENT CASES
V-BRUSH REGULATOR
W-WORK TABLE
X-T-H. REGULATOR
Z-SHOW CASES

EQUIPMENT.

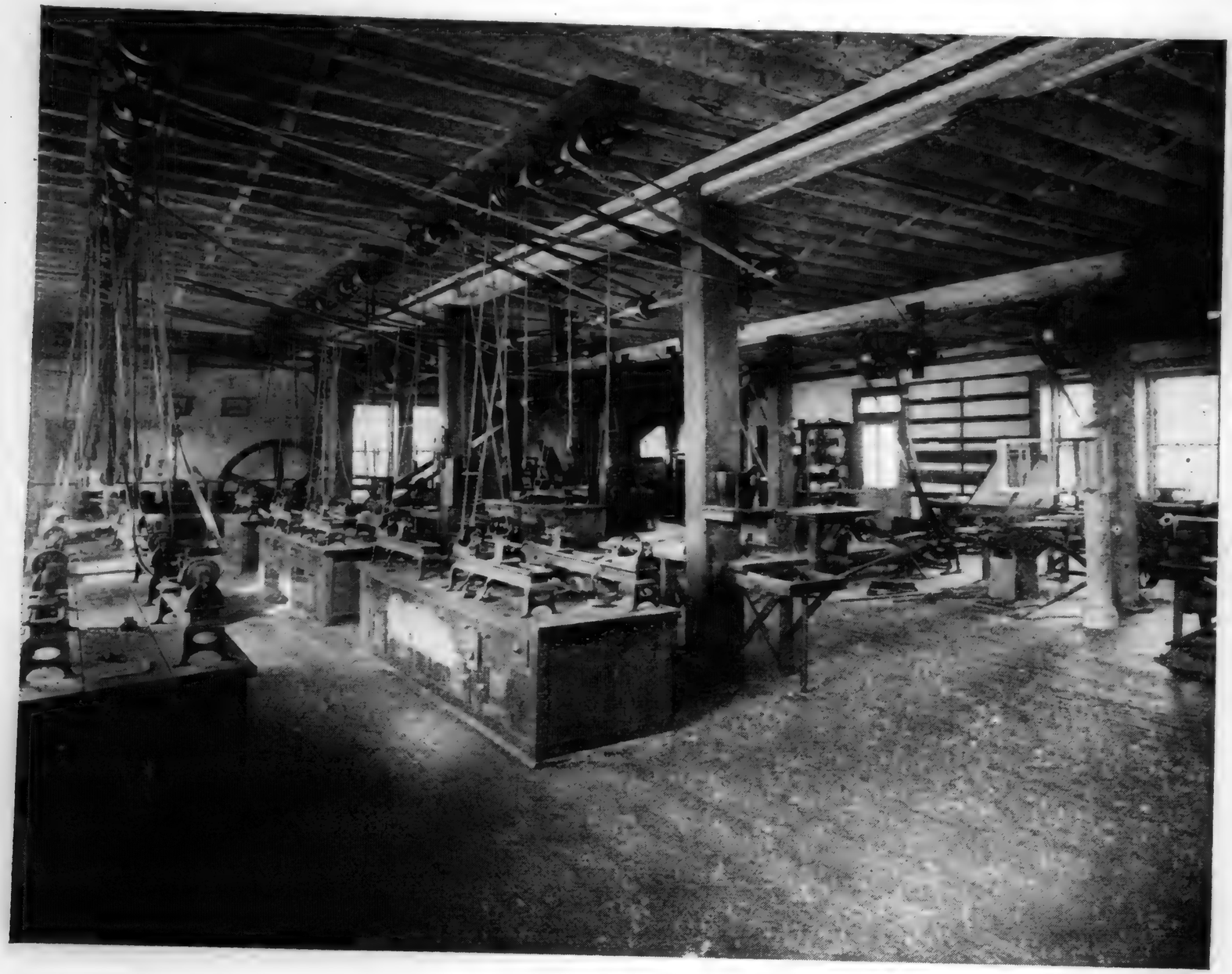
The electrical laboratory has a complete line of batteries, call-bells, annunciators, telegraph sounders, relays, keys, magnets; galvanometers, resistance boxes, electro-plating apparatus, and all apparatus for students in electrical engineering. The equipment comprises many fine instruments of precision: Lord Kelvin's standard 100 ampere balance (either for direct or alternating currents); Lord Kelvin's graded current galvanometer, reading 600 amperes; also, his graded potential galvanometer, reading 600 volts; Weston alternating current voltmeter, Weston direct reading watt-meter, Queen's "Acme" testing set, Kelvin electro-static voltmeter, Cardew voltmeter (for direct or alternating currents), reading to 150 volts; Weston's standard ammeter and voltmeter, box of resisting coils; Queen's magnetic vane voltmeter, and ammeter, standard micro-farad condenser and Sabine key; Thompson's watt-meter, ballistic reflecting galvanometer, mirror galvanometer, Fein ammeter and voltmeter, Ayrton & Perry ammeter, Thomson inclined coil ammeter, Edison ammeters, Kohl's solenoid ammeter, Wood ammeter, Deprez ammeter, Hartman & Braun voltmeter, D'Arsonval galvanometer, Rowland-D'Arsonval galvanometer, cable testing apparatus, Hughe's induction balance, tasimeter, microphone, telephones, electrolytic apparatus and several mirror and other galvanometers for first year students.

In the dynamo room the following are installed: One Weston 150 volt, 20 ampere dynamo, with rheostat; one Brush 6 arc light dynamo, with regulator and six lamps; one Ideal 5 kilo-watt three phase alternator; one Thomson-Houston 9 arc light dynamo with lamps; one Edison compound wound 12 kilo-watt generator; a Thomson-Houston 110 volt, 75 ampere generator; two street car motors used as either direct or alternating current generators or motors; two polyphase induction motors; one General Electric 5 horse-power induction motor mounted on cradle dynamometer; General Electric 20 horse-power motor; one Stanley induction motor with condensers; Edison 3½ kilo-watt generator; a Crocker-Wheeler one horse-power motor and rheostat, and one bi-phase alternator, and 500 volt generator, made by special students, furnish current to laboratory, and light up the different buildings. A lamp board with a capacity of 210 lamps has been installed and is used for testing purposes.

The dynamos occupy a separate brick building, 50 x 32 feet, and are operated by a 35 horse-power Westinghouse vertical engine, and a 25 horse-power Atlas engine.

This department, being provided with Lord Kelvin's standard electrical instruments for exact measurements, will calibrate, free of expense, any ammeter or voltmeter that may be sent to the College.

An electric motor made by students, supplied with current from a



WOOD ROOM.

generator at a distance of 3,000 feet, operates a gin, gin press, ensilage cutter and feed cutter at the experiment station farm. This motor not only subserves a useful purpose in the operation of these machines, but is an excellent illustration of the electric transmission of power.

MECHANICAL ENGINEERING AND MECHANIC ARTS.

PROFESSOR WILMORE.

B. H. CRENSHAW,
R. J. TRAMMELL,
M. T. FULLAN,
} ASSISTANTS.

MECHANIC ARTS.

The course in manual training covers three years, as follows: first year, wood-working—carpentry and turning; second year, pattern making and foundry and forge work—molding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the three lower classes. For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

The power for running the apparatus in this department is derived from a twenty-five horse-power Harris-Corliss automatic engine which is supplied with steam by a thirty horse-power steel horizontal tubular boiler. A steam pump and a heater for the feed water, form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected.

The equipment for the wood-working shop comprises the following: 30 wood-working benches, each with complete set of carpenter's tools; 24 turning-lathes, 10-inch swing, each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 jointer; 1 pattern-maker's lathe, 16-inch swing; 1 36-inch grindstone. The tool room is supplied with a variety of extra hand-

tools for special work, and in addition to the regular carpenter's tools in the benches, each student is supplied with a set of chisels and plane irons with a locker to keep them in and is held responsible for their care and condition.

The equipment for the foundry consists of molding benches for 18 students, each supplied with a complete set of molder's tools; a 23-inch Colliau cupola, with all modern improvements, capable of melting 2,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small moulding flasks, a foundry crane, special tools, etc.

The forge shop equipment consists of 16 hand forges of new pattern, each with a set of smith's tools, anvil, etc. The blast for all the forges is supplied by a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a No. 15 Sturtevant exhaust blower draws the smoke from the fires into the smoke-flues and forces it out through the chimney.

The machine department occupies a brick building, 30 x 50 feet, and is equipped with eight engine-lathes, (screw-cutting), 14-inch swing, 6-foot bed; 2 engine lathes 16-inch swing, (one with taper attachment); 1 engine lathe, 18-inch swing, with compound rest and taper attachment): 1 speed lathe, 10-inch swing; 1 20-inch drill press (power feed); 1 10-inch sensitive drill; 1 15-inch shaper; 1 22-inch x 22 inch x 5 feet planer; 1 universal milling machine; 1 corundum tool grinder (14-inch wheel); 1 bench grinder; 1 post drill press, 14-inch; 1 universal cutter and reamer grinder; 1 Brown and Sharpe universal grinding machine; 1 power hack saw. A part of the room is set apart for vise-work, chipping and filing; and benches for 12 students are provided, each with vise and set of files, chisels, hammers, etc. In the tool-room is to be found a good supply of machinists' tools for general shop use, sach as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, with machine for grinding twist drills.

The nature of the work in each department is as follows:

FIRST YEAR.

I. A course of carpentry or hand work covering the first two terms. The lessons include instruction in the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, different kinds of joints, timber-splices, cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the third term. The lessons comprise, first, nature and use of lathe and tools, plain, straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plate and chuck work, hollow and spherical turning.

SECOND YEAR.

I. A course in forge work in iron and steel, occupying the first term. The lessons are arranged so that the students in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

II. A course in pattern-making covering the second term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general molding.

III. A course in molding and casting in iron and brass occupying the third term. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks; core work is also given, and some three part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola.

In connection with this second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

THIRD YEAR.

I. A course of chipping and filing, covering the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved sufaces, key-seating, etc., filing and finishing to line (straight and curved), surface filing and finishing, fitting, slotting, vedotail work, sawing, pin and screw filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron, steel and brass; turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press,—reaming, boring, screw-cutting in lathe and with taps and dies, planing, slotting, etc.,

with planer and shaper, milling various forms with the milling machine, including exercises in making taps, reamers, etc., fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals; such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

All of the work is done from blue prints made by the class in drawing. In the construction work, the student is given a blue print and the material for a certain part. He is then encouraged to study the work and plan the best method of doing it.

MECHANICAL ENGINEERING.

JUNIOR YEAR.

Elementary Mechanics.—Three hours a week for the first term are devoted to this subject. The fundamental laws underlying all mechanical science and the mechanics of liquids, gases and vapors are studied.

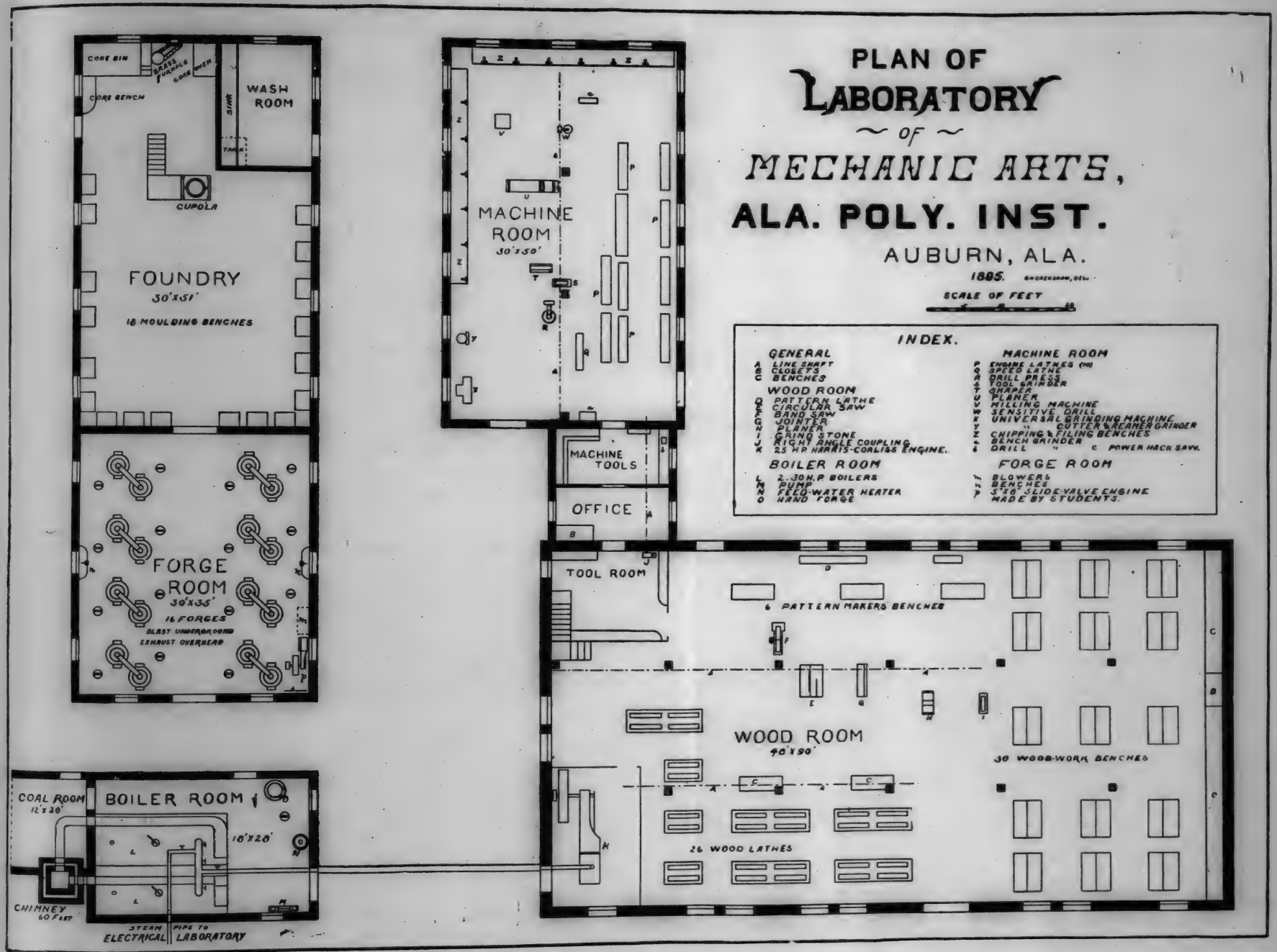
Principles of Mechanism.—Three recitations per week during the second and third terms are devoted to this subject.

Under this head machines are analyzed and their elementary combinations of mechanism studied. The communication of motion by gear wheels, belts, cams, screws and link-work, the different ways of obtaining definite velocity ratios and definite changes of velocity, parallel motions and quick return motions as well as the designing of trains of mechanism for various purposes, together with the theoretical forms of teeth for gear wheels to transmit the motion through these trains, are investigated under this subject.

Mechanical Drawing.—During the first term the students make drawings to exact scale, of some of the simpler machines. The student takes his own measurements and makes his own sketches from which to make the finished drawing.

An elementary course of machine design is started at the beginning of the second term and continued till the end of the year. Some comparatively simple machine is selected and studied in all its details. Careful attention is given to the strength of the parts and their mechanical arrangement with reference to facility of manufacture. An actual machine or the working drawings of a machine are obtained, the dimensions compared with those obtained by applying the theoretical formulas, and the causes of variation between the two studied.


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PLAN OF
LABORATORY
OF
MECHANIC ARTS,
ALA. POLY. INST.
AUBURN, ALA.
1895.
SCALE OF FEET
INDEX.
GENERAL
A LINE SHAFT
B CLOSETS
C BENCHES
WOOD ROOM
D PATTERN LATHE
E CIRCULAR SAW
F BAND SAW
G JOINTER
H PLANER "
I GRIND STONE
J RIGHT ANGLE COUPLING
K 25 H.P. HARRIS-CORLISS ENGINE.
BOILER ROOM
L 2-30 H.P. BOILERS
M PUMP
N FEED-WATER HEATER
O HAND FORGE
MACHINE ROOM
P ENGINE LATHES (10)
Q SPEED LATHE
R DRILL PRESS
S TOOL GRINDER
T SHAPER
U PLANER
V MILLING MACHINE
W SENSITIVE DRILL
X UNIVERSAL GRINDING MACHINE
Y CUTTER & REAMER GRINDER
Z CHIPPING & FILING BENCHES
a BENCH GRINDER
b DRILL " c POWER HACK SAW.
FORGE ROOM
m BLOWERS
n BENCHES
p 5"x8" SLIDE-VALVE ENGINE MADE BY STUDENTS.
COKE BIN
BABBS FURNACE
CORE OVEN
CORE BENCH
SINK
WASH ROOM
TABLE
CUPOLA
FOUNDRY
30'X51'
18 MOULDING BENCHES
MACHINE ROOM
30'X50'
MACHINE TOOLS
OFFICE
FORGE ROOM
30'X35'
16 FORGES
BLAST UNDERGROUND
EXHAUST OVERHEAD
TOOL ROOM
6 PATTERN MAKERS BENCHES
WOOD ROOM
40'X90'
30 WOOD-WORK BENCHES
26 WOOD LATHES
COAL ROOM
12'X20'
BOILER ROOM
16'X20'
CHIMNEY
60 FEET
STEAM PIPE TO ELECTRICAL LABORATORY

Laboratory Work.—The laboratory work will consist of hand work in iron and machine work in iron, as given in the course in mechanic arts in the third year.

TEXT-BOOKS.

Wood's Elementary Mechanics; Stahl and Wood's Elementary Mechanism.

SENIOR YEAR.

Mechanical Engineering of Power Plants.—The first term five hours per week is given to the study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages and disadvantages of each discussed. Extensive files of manufacturer's catalogues are kept and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work.

Steam Engine.—The second term five hours per week will be given to the study of the theory and efficiency of the steam engine, with discussions of the effects of condensation in cylinder, action of fly-wheels, effects of jacketing, etc. Simple and compound engines, various valves and cut-off motions, and the principal types of modern engines are studied. Special attention is given to the steam engine indicator.

Graphical Statics of Mechanism.—Six weeks of the third term, five hours per week, will be given to the study of this subject. The advantage of graphical over analytical methods is generally recognized, and new applications of the former are constantly being made. By its use, the forces acting in every part of a machine may be determined, both in direction and intensity, without the use of a mathematical formula.

During the remainder of the third term, a series of lectures on mechanical refrigeration and gas engines is given.

Machine Design.—The subject of machine design is made a continuation of the junior course and runs throughout the year, two hours a week. During the first term, the strength and proportions of different joints and fastenings are studied, and problems given for actual solution. During the remainder of the year the time is spent on steam engine design. The results as obtained from standard formulas are compared with the dimensions as used by the best constructors, and the reasons for variations, if any occur, are studied.

Laboratory Work.—The students are not only taught how to calibrate and use the different instruments, but they are brought in contact with engineering appliances under practical working conditions.

Thoroughness of work is sought rather than the performance of a large number of experiments.

The following course has been arranged:

Calibration of steam gauge; calibration of indicator spring; calibration of thermometer; calibration of scales and balances; calorimeter tests with barrel separating and throttling calorimeters; boiler test with determination of the quality of steam and analysis of flue gas; efficiency test of engine with brake and indicator power measurement; test of hot air pumping engine; efficiency and duty of a steam pump; tensional, compressional and transverse tests of cast iron, wrought iron, steel and wood, in which are observed the limit of elasticity, the ultimate breaking strength and the modulus of elasticity.

This class usually makes a test of some electric plant or mill some time in the last term.

The apparatus for carrying on this work consists of 45 horse-power Imperial cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Deane air pump and circulating pump, of a 25 horse-power Harris-Corliss engine, a 35 horse-power Westinghouse engine, a 25 horse-power Atlas engine, two 9 horse-power engines constructed by students in the shops, a small engine and boiler especially for making efficiency tests, a duplex Deane steam pump, an Ericsson hot air engine, a Westinghonse air pump, four steam engine indicators, a separating calorimeter, pyrometers, scales, a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester for correcting the standard gauge, a 35,000-pound testing machine, and Henning micrometer extensometer, a Carpenter calorimeter with



LABORATORY OF BIOLOGY.

LABORATORY OF BIOLOGY.



CORPS OF CADETS.

chemistry and agriculture, and to some practical work and "field lectures" to the students of the same course during the sophomore year. Instruction is given by lectures and text-book and by courses of reading, using the green house and orchards and gardens of the experiment station to give practical illustrations of the subjects taught.

Attention is called to the various fruits and vegetables that can be successfully cultivated in Alabama, and methods of propagation, cultivation and marketing are discussed. Particular attention is called to the diseases and insect enemies to which each of these crops are liable, and careful directions are given as to the best known means of combatting them. The construction and management of green houses, hot beds and cold frames receive special attention, while such topics as floriculture, landscape gardening and forestry are discussed in a general way only.

Special work will be arranged for any student desiring to take a more extended course in horticulture.

MILITARY SCIENCE AND TACTICS.

COL. B. S. PATRICK, COMMANDANT.

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company and of the battalion in close and extended order, also in guard mountings, inspections, dress parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the College is provided with modern cadet rifles and accoutrements. Ammunition for practice firing is used under the direction of an experienced officer. The exercises in target practice begin the first day of the third term.

The following uniform of standard cadet gray cloth has been prescribed for dress: Coat and pants as worn at West Point, with sack coat for fatigue, dark blue

cadet cap. A neat and serviceable uniform can be obtained here at $14 to $15. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct and scholarship. The commissioned officers will be selected either from the senior or junior classes, and promotion will depend on merit and not wholly on seniority.

A band, composed of cadets, furnishes appropriate music at all reviews and parades, and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the President and Commandant. The resignation of his office by a minor will usually not be considered without first placing all the circumstances of the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination Moral fitness, including demerits, will be considered.

No cadet can continue an officer in the corps who during a session is classed in the fourth grade in two or more subjects at any term examination, or in the fourth grade in any subject at two term examinations; nor who receives during the session more than 60 demerits.

Examinations will be conducted by a Board of Officers, to be composed of the Commandant of Cadets and two commissioned officers, to be designated by him. The proceedings of the Board are subject to revision and approval by the President of the College.

Each company is officered by one captain, two first lieutenants, one second lieutenant, and with a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The junior class recites once a week in the United States Infantry Drill Regulations.

The senior class recites once a week in "Notes on Military Science."

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. Army, and the names of the three

most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

PHYSIOLOGY AND VETERINARY SCIENCE.

PROFESSOR CARY.

PHYSIOLOGY.

The sophomore class studies human anatomy, physiology and hygiene during the entire college year.

It is the aim of the department to give the students practical and real knowledge of the gross anatomy and functions of the various parts of the human body. Due attention is given, also, to the laws of health—the conditions most favorable to a continuous healthy action of the organs of the human body.

Instruction is given by lectures and by text-books, supplemented by black-board drawings, charts, models of organs, a human skeleton, and by dissections of some of the smaller animals (dog, cat, etc.).

Martin's Human Body is used as a text and reference book, and several other works on anatomy, physiology and hygiene may be consulted in the college and experiment station libraries.

VETERINARY SCIENCE AND ART.

Students in the agricultural and chemical course of study, during the entire junior and senior years, devote to this work two hours per week in the class room and three hours per week at practical clinics. Instruction in veterinary science and art is given by lectures.

The lectures are arranged with special reference to the students who are interested in horses or other domestic animals; also to those students who contemplate studying human or veterinary medicine. While it is not the

aim to give a complete course in veterinary medicine, we attempt to present the general principles of comparative medicine with such special applications as are adapted to the conditions and wants of the students.



Special attention is given to the exterior anatomy of the horse, while comparative anatomy is presented mainly in connection with the study of the diseases of the different apparatus of the horse or other domestic animals.

Lameness in the horse, minor surgery, the actions and uses of the most common medicines, the principles and practice of comparative medicine, and the ways of protecting the health of domestic animals, are considered in as plain and practical a manner as the time allotted to each subject will permit. Post mortem examinations and the dissection of domestic animals are used as object lessons in the study of general pathology and anatomy.

The senior class in pharmacy devotes three hours per week, during the first and second terms, to the study of therapeutics; and four hours per week during the third term to class room and laboratory work in bacteriology.



LABORATORY OF PHARMACY.

To the post-graduate student this department furnishes work in histology, bacteriology, pathology, meat and milk inspection. Such students may devote their entire time to work in this department with approval of faculty.

The department of physiology and veterinary science is now located by itself in a building which consists of a two-story portion, containing four laboratory rooms on the second floor and a lecture room, museum and office on the lower floor; and a one-story part, which contains an operating room.

The building is supplied with water and gas, and the laboratory is now equipped for work. The museum contains the skeletons of the horse, the ox, the sheep, and the hog, and a human skeleton. It also contains anatomical models of the various parts and organs of the human body and models of many parts of the horse, the ox and the other domestic animals. It also contains a collection of pathological and anatomical specimens, and one of animal parasites.

The new veterinary hospital building contains five large box stalls, four open single stalls, an office and a feed room, on the lower floor; the upper floor is used as a storage room for hay, fodder, etc. The hospital is supplied with fresh water.

Every Saturday during the college year, the department conducts a free clinic for the benefit of the students in veterinary science and art. Clinical cases have been various and numerous, giving the students opportunity to see and study many diseases and lamenesses and to become proficient in minor operations.

PHARMACY AND PHARMACOGNOSY.

PROFESSOR MILLER.

JUNIOR YEAR.

Pharmacy.—Class work, *three hours* a week. The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in pharmacy. Apparatus used in pharmaceutical processes. Discussion of all classes of pharmaceutical preparations.

Laboratory, *nine hours* a week. Preparation of official and non-official galenicals.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. All official vegetable drugs studied with aid of simple and compound microscope.

SENIOR YEAR.

Pharmacy.—Class work, *four hours* a week. Official and non-official pharmaceutical chemicals, inorganic and organic, including the more important newer remedies. The prescription. Incompatibilities. Doses.

Laboratory, *nine hours* a week. Preparation of official and non-official pharmaceutical chemicals, inorganic and organic. Pharmaceutical testing by pharmacopœial methods. Drug assaying, special attention given to compounding of prescriptions.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. Study of important non-official vegetable drugs; of drugs of animal origin; of adulterants and worthless drugs. Practical exercises in identification of pharmaceutical preparations and chemicals.

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than three hundred drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

MISCELLANEOUS.

REGULATIONS.

(1) Each student upon entering is required to sign his name in the matriculation book, and pledge himself to obey the rules and regulations of the College.

(2) Every absence from recitation or examination is graded zero.

(3) When the term grade of a cadet is lowered by reason of ab-

sence for which a satisfactory excuse can be rendered, a special term re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(4) Only sickness, as reported by the Surgeon, or being absent by reason of family sickness, will constitute a satisfactory excuse for granting a re-examination.

When a cadet is called away from College by his parents his zeros for absences are not removed.

(5) The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

(6) Privates of the senior class in full standing who are candidates for graduation may be excused by the President from all military drills, and also students over twenty-one years of age at the time of entering College that are permitted to devote their time to one special study, as chemistry, agriculture or pharmacy, provided the time devoted to drill is spent by them in laboratory work.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of Distinction are awarded in public on commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class, provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

From the records a monthly circular, or statement, is sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the month are held by each professor during the months of October, November, February, and April. Each examination occupies one hour.

At the end of each term written examinations, or written and oral, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations, can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except in extreme cases.

LIBRARY.

The library occupies an elegant, well-lighted room in the main building, and also two smaller adjacent rooms. It contains over 12,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room, and is thus made an important educational feature.

MUSEUM.

The museum occupies a large room in the third story. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character.

BOARDING HOUSES.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after "call to quarters," or are guilty of any violation of order. The report of the inspector is made to the Commandant on alternate days of the week.

Students, after selecting their boarding-houses, are not permitted to make changes without obtaining permission from the President, and this permission is given only at the close of a term, except for special reasons.

Permission to board and lodge at separate houses will be granted only to seniors, to cadets twety-one years of age and to those who are on the "honor roll," except on special conditions.

By special arrangement with the College authorities, Mrs. M. L. Mitchell, Mrs. A. DeBardeleben and Mrs S. M. Anderson, will accommodate students with board, lodging and fuel, for $9.50 per month.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Incidental fee, per half session	$ 2 50
Library fee, per half session	1 00
Surgeon's fee, per half session	2 50
	$ 6 00



GENERAL LIBRARY.

These fees are payable, $6.00 on matriculation and $6.00 on February 1st. By order of the Trustees no fees can be remitted.

For students entering after January 1st, the fees for a half session only are required.

For a non-resident of the State there is a charge for tuition of $20.00 per session, payable $10.00 on matriculation and $10.00 on February 1st, in addition to the semi-annual fee of $6.00 payable by all students.

Board, per month, with fuel and lights	$ 12 00 to	$15 00
Fees	12 00 to	12 00
Board, lodging, fuel and lights	108 00 to	135 00
Washing	9 00 to	9 00
Books, etc., say	8 00 to	15 00
Total	$137 00	$171 00

For non-resident students there should be added to the amounts given above $20.00 for tuition. This tuition fee is not required of any non-resident student who matriculated during the session of 1896–7.

Tuition for students not residents of Alabama is $20.00 per session, unless remitted by the Trustees to worthy students upon the recommendation of the Faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year, to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

HONOR SCHOLARSHIPS.

The following non-resident students were granted, each, by reason of special merit in conduct and scholarship during the session 97–98, an honor scholarship, which exempted from tuition fees:

E. Bukofzer	Tennessee.
R. B. Hall	Georgia.
J. P. Illges	Georgia.
M. N. Fleming	Georgia.
A. F. Jackson	Georgia.
J. M. McGoolrick	Georgia.
J. P. Moore	Georgia.
C. W. Nixon	Tennessee.

UNIFORM.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made, by a contractor, of excellent cloth manufactured at the Charlottsville mill This suit, including cap, costs at present about $14.00 It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to college property for which he may be liable.

At the close of the session the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

Fees to be paid on entrance:

Incidental fee	$ 2 50	
Library	1 00	
Surgeon	2 50	
Contingent fee	5 00	
Uniform	14 00	
	$25 00	$25 00
Tuition, non-resident		$10 00
		$35 00

Besides the above, the student should deposit with the Treasurer enough to pay for books, one month's board, incidentals, amounting to, say $25.00. Hence, a resident of Alabama should deposit with the Treasurer $50.00, a non-resident, $60.00.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons or wards, whether for regular charges of college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved

When funds are deposited, checks are drawn on the Treasurer of the College by the cadet to pay his necessary expenses. These checks are paid only when officially approved The approval is given only for necessary expenses, as stated in the catalogue, unless specially requested in writing by the parent.

The College cannot be held responsible for the expenses of a student, unless the funds are deposited with the Treasurer. No student

should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty an essay or oration and read and deliver the same at commencement, if required by the Faculty.

It must be given to the Professor of English by the first of April.

The subject must be submitted for approval by January 1st.

LITERARY SOCIETIES.

There are two literary societies connected with the College—the Wirt and the Websterian. Each has a hall in the main building.

These societies hold celebrations on the evenings of Thanksgiving Day and 22nd of February. They elect annually, with the approval of the Faculty, an orator to represent them at the close of the year.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in the presence of the Faculty and students.

The *first and second terms* the students of the junior and sophomore classes are exercised in original orations and declamation.

The *second and third terms* the members of the senior class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

In 1885, the Alumni Society established "The Alumni Scholarship," which makes an annual loan of one hundred and seventy dollars to a beneficiary elected by the society. Eight young men have been thus enabled to go through College. This scholarship is supported by annual contributions from the Alumni and other friends of the institution.

Subscriptions should be sent to B. H. Crenshaw, Treasurer, Auburn, Ala.

The annual alumni oration is delivered by a member

of the society, in Langdon Hall, on Alumni Day, Tuesday of commencement week.

The following are officers of the society.

WM. H. BLAKE, of '92, M. D., President.
C. L. HARE, " '94, Vice President.
H. H. SMITH, " '95, Secretary.
B. H. CRENSHAW, '89, Treasurer.
T. H. SAMFORD, '88, Orator for 1899.

SURGEON.

The Surgeon is required to be present at the College daily, to visit at their quarters the cadets that are reported sick, and to give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering college.

ACADEMIC YEAR.

The academic year for 1899–1900 commences on Wednesday, 13th September, 1899 (*second Wednesday after the first Monday*), and ends on Wednesday, 13th June, 1900 (*second Wednesday after the first Monday*), which is commencement day.

It is divided into three terms. The first term extends from the opening of the session to the 22nd of December; the second term begins January 2nd, and ends March 18th; the third term continues to the close of the session.

AN ACT OF THE LEGISLATURE

To change the name of the Agricultural and Mechanical College of Alabama.

WHEREAS, the Agricultural and Mechanical College at Auburn having by means of the appropriations made by the State legislature, and by those made and continued in recent years by the acts of Congress, developed, as originally designed, into an institution where are taught not only the branches that relate to agriculture and the mechanic arts, but also the sciences and arts in general that relate to the industrial development of modern civilization, therefore:

SECTION 1. *Be it enacted by the General Assembly of Alabama*, That said institution shall hereafter be known and designated as The Alabama Polytechnic Institute, it being provided that said Institute shall continue to perform the functions of the State college for the benefit of agriculture and the mechanic arts, in accordance with the provisions of the Acts of Congress of July 2, 1862, granting lands to the several States and territories for collegiate purposes.

Approved January 27, 1899.

(Official) ROBT. P. MCDAVID,
Secretary of State.

DONATIONS TO THE DEPARTMENT OF ELECTRICAL ENGINEERING.

General Electric Co., Harrison, N. J., case of incandescent lamps.
S. C. Shaffner, Mobile, Ala., two arc lamps.
W. H. McBryde, New York, N. Y., one magnetic lamp socket.

DONATIONS TO THE DEPARTMENT OF MECHANICAL ENGINEERING FOR THE YEAR 1898–99.

Samples of Lathe and Planer Tools, donated by Armstrong Brothers Tool Co., Chicago, Ill.

Set of Castings and blue prints for complete Corliss valve gear, adapted to the Harris-Corliss engine in the shop, donated by The Edwin P. Allis Co., Milwaukee, Wis.

Samples of Finch Automatic oil cups, donated by George L. Thompson Manufacturing Co., Chicago, Ill.

Samples of Copper Gaskets, donated by The United States Mineral Wool Co., New York, N. Y.

DONATIONS TO THE GENERAL LIBRARY.

To the General Library, 12 vols.
Pamphlets, etc., 36 vols.
Government publications, 195 vols.

TO THE EXPERIMENT STATION LIBRARY.

Scientific papers and pamphlets, 63.
Bound volumes by Prof. C. F. Baker, 67.
Pamphlets by Prof. C. F. Baker, 143.

There are 56 scientific and literary journals regularly received in the general library, and 38 foreign journals and 26 American in the Experiment Station library, all of which are accessible to the students.

Addenda to List of Students,

Lynn Mathewis Boyd .....Macon.

207882


HERE WE REST

Gaylord
PAMPHLET BINDER
Syracuse, N. Y.
Stockton, Calif.

Catalogue of the Alabama Polytechnic Institute

1899

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▶   8  245 10  Catalogue of the Alabama Polytechnic Institute ǂh [microform] ¶
▶   9  246 10  Catalog of the Alabama Polytechnic Institute ¶
▶  10  260     Auburn, Ala. : ǂb The College, ǂc 1894-1899. ¶
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▶  12  310     Annual ¶
▶  13  362 0   1893-94-1898-99. ¶
▶  14  515     Issue for 1898-99 carries designation 1899-1900. ¶
▶  15  500     "State Agricultural and Mechanical College." ¶
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Periodicals. ¶
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the State Agricultural and Mechanical College of Alabama ¶
▶  20  785 00  Alabama Polytechnic Institute. ǂt Catalogue of the Alabama
Polytechnic Institute ¶
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LIBRARY

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CAT.2-

MAIN BUILDING,
ALABAMA
POLYTECHNIC INSTITUTE.



CATALOGUE

OF THE

Alabama Polytechnic Institute.

STATE COLLEGE,

FOR THE

Benefit of Agriculture and the Mechanic Arts.

AUBURN, ALABAMA.

1900.

MONTGOMERY, ALA.
BROWN PRINTING CO., PRINTERS AND BINDERS,
1900.

TRUSTEES.

His Excellency, JOSEPH F. JOHNSTON, President.....*Ex-officio.*
JOHN W. ABERCROMBIE, Superintendent of Education..*Ex-officio.*

F. M. MOSELEY,.....(term expires 1905).....Union Springs.
W. K. TERRY,.....(term expires 1905).....Birmingham.
T. H. FRAZER,.....(term expires 1905).....Mobile.
N. P. RENFRO,.....(term expires 1905).....Opelika.

J. G. GILCHRIST,.....(term expires 1903).....Hope Hull.
TANCRED BETTS,.....(term expires 1903).....Huntsville.
WALTER C. WHITAKER,..(term expires 1903).....Tuscaloosa.

JONATHAN HARALSON,....(term expires 1901).....Selma.
THOS. WILLIAMS,.....(term expires 1901).....Wetumpka.
J. A. BILBRO,.....(term expires 1901).....Gadsden.

E. T. GLENN, Treasurer.
J. H. DRAKE, M. D., Surgeon.

R. W. BURTON, Secretary.

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FACULTY AND OFFICERS.

WM. LEROY BROUN, M. A., LL. D.,
President and Professor of Physics and Astronomy.

OTIS DAVID SMITH, A. M., LL. D.,
Professor of Mathematics.

PATRICK HUGHES MELL, M. E., PH D.,
Professor of Botany and Geology.

JAMES HENRY LANE, C. E., A. M., PH. D., LL. D.,
Professor of Civil Engineering and Drawing.

CHARLES COLEMAN THACH, A. M.,
Professor of English and Political Economy.

GEORGE PETRIE, M. A., PH. D.,
Professor of History and Latin.

BENNETT BATTLE ROSS, M. SC.,
Professor of General and Agricultural Chemistry and State Chemist.

* CHARLES HUNTER ROSS, C. E., PH. D.,
Professor of Modern Languages.

JOHN JENKINS WILMORE, M. E.,
Professor of Mechanical Engineering and Director of Laboratory.

CHARLES ALLEN CARY, B. SC., D. V. M.,
Professor of Physology and Veterinary Science.

EMERSON R. MILLER, PHAR. M., M. SC.,
Professor of Pharmacy.

JOHN FREDERICK DUGGAR, M. SC.,
Professor of Agriculture.

FRANK SUMNER EARLE.
Professor of Biology and Horticulture.

ARTHUR ST. CHARLES DUNSTAN, M. E., C. E.,
Professor of Electrical Engineering and Physics.

BOLLING HALL CRENSHAW, M. E.,
Assistant Professor of Mechanic Arts and Mathematics.

BENJAMIN SWEAT PATRICK, E. & M. E.,
Commandant and Acting Professor of Military Science.

* Deceased.

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THOMAS GREEN FAULKNER, M. A.,
Acting Professor Modern Languages.

CLIFFORD LEROY HARE, M. Sc.,
Instructor Chemical Laboratory.

ROBERT JEFFERSON TRAMMELL, C. E.,
Instructor in Mechanic Arts.

HENRY HEARST KYSER, E. & M. E.,
Instructor in Physical and Electrical Laboratory.

WALTER LYNWOOD FLEMING, M. Sc.,
Assistant Librarian.

MICHAEL THOMAS FULLAN, M. Sc.,
Assistant in Mechanics Arts.

ROBERT HIGGINS ADAMS, B. Sc.,
Assistant in English and Mathematics.

WILLIAM OSCAR SCROGGS, B. Sc.,
Assistant in English.

* ARTHUR McBRYDE RANSOM, M. Sc.,
Assistant in Chemistry.

ISHAM FENNELL McDONNELL, B. Sc.,
Assistant in Electrical Engineering.

THOMAS HENNINGTON McADORY, B. Sc.,
Assistant in Mechanic Arts.

ARTHUR HENRY FEAGIN, B. Sc.,
Assistant in Civil Engineering and Drawing.

† HARRY STREETY HOUGHTON, B. Sc.,
Assistant in Chemistry.

BAILEY EDGAR BROWN, B. Sc.,
Assistant in Veterinary Science.

C. C. THACH,
Superintendent of Library.

O. D. SMITH,
Corresponding Secretary.

* Resigned.
† Appointed Feb. 15th.

OFFICERS.

OF THE

AGRICULTURAL EXPERIMENT STATION.

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION.

F. M. MOSELEY.....Union Springs.

J. G. GILCHRIST.....Hope Hull.

JONATHAN HARALSON.....Selma.

STATION COUNCIL.

WM. LEROY BROUN.....President.

P. H. MELL.....Director and Botanist.

B. B. ROSS.....Chemist.

C. A. CARY, D. V. M.....Veterinarian.

J. F. DUGGAR.....Agriculturist.

F. S. EARLE.....Biologist and Horticulturist.

J. T. ANDERSON.....Associate Chemist.

ASSISTANTS.

C. L. HARE.....First Assistant Chemist.

J. Q. BURTON.....Second Assistant Chemist.

* H. S. HOUGHTON.....Third Assistant Chemist.

T. U. CULVER.....Superintendent of Farm.

R. W. CLARK.....Assistant Agriculturist.

MOSES CRAIG.....Assistant Horticulturist.

* Appointed Feb. 15, vice A. McB. Ransom, resigned.



LANGDON HALL.

The Institute is a distinctive school of Science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts established by the State in 1872, by endowing it with the land-grant appropriation made by the U. S. Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

In its course of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty. The Institute thus endeavors to educate as well as instruct, to form character as well as give information of value.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The Institute now possesses facilities for giving laboratory instruction in applied science in the following departments:

I—IN AGRICULTURE AND HORTICULTURE.

The farm contains 304 acres, and is supplied with illustrative specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who entered upon this course of study.

II—IN MECHANIC ARTS.

The laboratory of mechanic arts is used as an auxiliary in industrial education, and as a school of manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is *instructive* in character, as in any other laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the Institute each student enters this school and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus by associating

manual and mental training, to educate thoroughly the student for the duties of life, whatever may be his vocation. There is no attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall, 90x50 feet, and is provided with a twenty-five horse-power Corliss engine, a planer, circular saw, band-saw, two scroll says, a buzz planer, a pattern maker's lathe, twenty-four stands, each with a lathe and a full set of tools, and thirty benches for carpenter work with the tools requisite for construction.

A brick building, 30x87 feet, with two rooms, has been constructed especially for instruction in working iron.

One room is equipped with sixteen forges and tools required for a forge department, and the other with a Colliau cupola furnace, a core oven, a brass furnace, molding benches, foundry crane constructed by students, and special tools for use in a foundry.

The forge and foundry rooms are furnished with a Sturtevant fan and exhauster, supplied with power from a ten-horse power engine, constructed by the students in mechanic arts.

The machine department occupies a brick building, 30x50 feet, and is equipped with ten engine lathes, one speed lathe, one 20-inch drill press, one 10-inch sensitive drill, one post drill, one 16-inch shaper, one 5-foot planer, one universal milling machine, a corundum tool grinder, a small emery grinder, a universal cutter and reamer grinder, a No. 1 Brown & Sharpe universal grinding machine, and a power hack saw.

The chipping and filing department is arranged with benches, vises and tools for twelve students.

The tool room is well supplied with special tools for use in instruction, including a machine for grinding twist drills. The rooms are lighted with electricity whenever necessary.

III—IN PRACTICAL CHEMISTRY.

The chemical laboratory is supplied with modern apparatus, and in its equipment affords excellent facilities for instruction in practical chemistry and for investigation.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research. The building contains a large general laboratory that accommodates sixty students, a lecture room with a capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

IV—IN ELECTRICAL ENGINEERING.

The electrical laboratory is well supplied with modern appliances for instruction in electrical engineering. It occupies three large rooms in the basement and is equipped with many fine instruments of precision.

In addition to resistance boxes, bridges, condensers, galvanometers, dynamometers, wattmeters, and other laboratory instruments, the department is supplied with representatives of the best types of commercial electrical instruments from foreign and domestic makers.

The dynamos occupy a separate building and are operated by a twenty-five horse power Atlas engine, and a thirty-five horse power Westinghouse engine. In this building are installed the following dynamos:

Edison compound 12 Kilo-watt generator, Thomson-Houston 150 light 110 volt dynamo, Weston 150 volt 25 ampere generator, Crocker-Wheeler one horse power motor, Ideal 3 phase alternator, Brush 6 arc light dynamo with lamps, two Baxter street car motors, 20 horse power each (so connected as to be used as direct or alter-

nating current motors or generators), one 5 horse power three phase motor, one General Electric 20 horse power motor, one 40 light shunt dynamo, one Edison 3 Kilowatt generator, one Stanley induction motor with condenser, two bi-phase induction motors (built by students), one 9 light Thomson-Houston arc machine, two phase alternator and 500 volt 20 ampere generator, made by students. There is also in connection with this department at the experiment station, a ten horse power motor, made by students, which is operated by the 500 volt generator in the dynamo room.

V—IN PHYSICS.

In the College building provision is made for elementary laboratory work in the department of physics. Special rooms are appropriated for this purpose, and are equipped with the necessary appliances for instruction in practical physics.

VI—IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate thirty students, with an excellent collection of minerals.

VII—IN BOTANY.

In the work of the agricultural experiment station there is a botanical garden under the charge of the professor of botany; investigations in botany are given special attention, and opportunities are offered advanced students for practical work in a laboratory especially fitted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research. This department is provided with Auzoux's clastic models of seeds and flowers for teaching botany.

VIII—IN BIOLOGY.

The laboratory in this department adjoins the lecture room of the professor, and is furnished with tables, excellent microscopes and appliances for investigation. Each student of the class works under the supervision of the professor.

IX—IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, models of bridges ,etc., is provided for the use of the students, and the customary exercises in the field are given.

X—IN DRAWING.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing room, which will accommodate fifty students, is provided with tables, lock-boxes, etc.

XI—IN MECHANICAL ENGINEERING.

The mechanical course has been extended to include experimental work in mechanical engineering.

The apparatus available for this instruction is as follows: A 45 horse power Imperial Cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Deane air pump and circulating pump, a 25-horse power Harris-Corliss engine, a 35 horse power Westinghouse engine, two 9 horse power engines constructed by students, the boilers belonging to the regular power plant, a small engine and boiled for the special purpose of making efficiency tests, a Deane duplex steam pump, a 4-horse power gasoline engine, an Ericsson hot air engine, a New York air pump, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, thermometers, a pyrometer, scales, a standard steam gauge with appar-

atus for testing steam gauges, a Crosby dead weight tester with weights for correcting the standard gauge, a 35,000-pound testing machine, a Henning micrometer extensometer, and a Carpenter calorimeter with the necessary auxiliary apparatus for determining the heating value of different kinds of coal.

This work is now carried on in the lower story of the annex to the chemical laboratory. This room is 30x60 feet in size and was specially designed and fitted up for this purpose. A three-inch steam main has been laid from the boiler house, thus securing a steam supply in the building for all work requiring it. The work is thoroughly practical, and it is desired to extend it as rapidly as the funds available for the purchase of apparatus will allow.

XII—IN PHYSIOLOGY AND VETERINARY SCIENCE.

There has been constructed for the veterinary department a new and separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, and museum with skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

XIII—IN PHARMACY.

The laboratory of this department occupies the second floor of the annex to chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations.

The students work in the laboratory with the professor, from five to eight hours, six days in the week.

The facilities are increased as means are available.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is supplied with cadet muskets and accoutrements for the corps.

COLLEGE BUILDINGS.

The frontispiece is a representation of the main College building. It is 160 x 71 feet and contains forty-five rooms. This building is not used for dormitories for students, but is appropriated to purposes of instruction and investigation.

It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc.

LANGDON HALL.

This is a two-story building, 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

The first story is appropriated to the laboratory of mechanic arts.

THE CHEMICAL LABORATORY.

As shown on the opposite page this is a two story structure, 40 by 60 feet, with a rear projection, 35 by 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and terra cotta ornamentation.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains improved working tables, with water, gas and every necessary appliance for chemical work.

The second story contains a lecture room with seats and tablets for eighty students. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and mechanical chemistry, prominent subjects taught in the institution.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building, containing rooms for pharmacy, mechanical engineering, and drawing.

The Chemical Laboratory for the Agricultural Experiment Station occupies a building 60 by 26 feet and is appropriated exclusively for chemical investigation and research, and not for instruction.



CHEMICAL LABORATORY.

GRADUATES IN 1899.

CLASS OF 1899.

HONOR GRADUATES.

COURSE IN CHEMISTRY AND AGRICULTURE.

Flake Earle Farley.....Lee.

COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

Jones Stephen Gilliland.....Coosa.

COURSE IN CIVIL ENGINEERING.

Arthur Henry Feagin.....Bullock.

GENERAL COURSE.

William Oscar Scroggs.....Georgia.

COURSE IN PHARMACY.

Dozier Turner.....Elmore.

DEGREES.

BACHELOR OF SCIENCE.

LeRoy James Allen.....Marengo.
Jesse Maldrie Atkinson.....
Emmett Gale Buck.....
Alston Boyd.....Tennessee.
Harriet Lavinia Dabney Bondurant.....Lee.
Bailey Edgar Brown.....Morgan.
Mattie Lucile Burton.....Lee.
Thomas Greene Bush.....Calhoun.
Charles Wallace Collins.....Hale.
Colonel Seldon Crew.....Coosa.
Frederick Robert Daly.....Jefferson.
Bolivar Davis.....Jefferson.
Marion Dawson.....Elmore.
James Francis Dobbin.....Florida.
Arthur Henry Feagin.....Bullock.
Michael Thomas Fullan.....Georgia.
Jones Stephens Gilliland.....Coosa.
Theophilus Eaton Goodwin.....Crenshaw.
Fannie Maud Holstun.....Lee.

Felix Grundy Horn.....Sumter.
Kate Meade Lane.....Lee.
Harry Toulmin Lay.....Montgomery.
Thomas Hennington McAdory.....Jefferson.
Isham Fennell McDonnell.....Madison.
Jackson Chadwick Minge.....Marengo.
Benjamin Otey Minge.....Marengo.
Hartley Allen Moon.....Coosa.
Hattie Marshall Phelps.....Lee.
Mary Evelyn Robinson.....Lee.
John Osgood Rush.....Autauga.
William Oscar Scroggs.....Georgia.
Joseph Wilson Sutcliffe.....Louisiana.
Dozier Turner.....Elmore.
James Alfred Ward.....Madison.
Thomas William Wert.....Morgan.
George Madison Wheeler.....Madison.

ELECTRICAL AND MECHANICAL ENGINEER.

Michael Thomas Fullan.....Georgia.
Jonathan Haralson.....Dallas.
Ashleigh Strudwick Moses.....Baldwin.
George Wrigley.....Georgia.

MINING ENGINEER.

George Nathan Mitcham.....Georgia.

MASTER OF SCIENCE.

Erin Black.....Lee.
Mary Wright Boyd.....Lee.
Alexander Humphreys Clark.....Montgomery.
Joseph Wood King.....Georgia.
Frank Greene Morriss.....Talladega.
Arthur McBride Ransom.....Georgia.

PHARMACEUTICAL CHEMIST.

John Wesley Williams.....Lee.

DISTINGUISHED STUDENTS.

Students who receive a grade above 90 in three studies in the freshman class, in four in the Sophomore, in five in the Junior, and in six in the Senior, are disguished for excellence in scholarship, and are awarded

HONOR CERTIFICATES.

The following students received honor certificates in 1899:

SENIOR CLASS

Bailey Edgar Brown.....Morgan.
Mattie Lucile Burton.....Lee.
Charles Wallace Collins.....Hale.
Flake Earle Farley.....Lee.
Arthur Henry Feagin.....Bullock.
Jones Stephen Gilliland.....Coosa.
Kate Meade Lane.....Lee.
Isham Fennell McDonnell.....Madison.
Hattie Marshall Phelps.....Lee.
Mary Evelyn Robinson.....Lee.
William Oscar Scroggs.....Georgia.
Dozier Turner.....Elmore.

HONOR STUDENTS IN THE JUNIOR CLASS.

COURSE IN CHEMISTRY AND AGRICULTURE.

Luther Noble Duncan.....Franklin.

COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

Roland B. Hall.....Georgia.

GENERAL COURSE.

James Richard Rutland.....Chambers.

COURSE IN PHARMACY.

Enoch Marvin Mason.....Lee.

JUNIOR CLASS.

Malcolm Alfred Beeson.....Etowah.
John Samuel Black.....Lee.
Jesse Wright Boyd.....Lee.
Millard Morse Brooks.....Escambia.

Edwin Bukofzer.....Tennessee.
Emma Beall Culver.....Lee.
William Crawford Dowdell.....Lee.
Luther Noble Duncan.....Franklin.
Sherman Guy Forbes.....Dale.
Bertha Mae Grout.....Lee.
Harry Young Hall.....Jefferson.
Roland B. Hall.....Georgia.
Charles Lewis Harold.....Escambia.
Edward Zellars Heard.....Lee.
Mary Katherine Hollifield.....Lee.
Moses Frank Kahn.....Lee.
Enoch Marvin Mason.....Lee.
William Livingston Neill.....Jefferson.
Charles Walter Nixon.....Tennessee.
William Forney Osburn.....Lee.
Hiram Perry Powell.....Georgia.
Fleming James Rigney.....Madison.
James Richard Rutland.....Chambers.
Joseph Manning Steiner.....Butler.

SOPHOMORE CLASS.

Eugene Flynn Enslen.....Jefferson.
John Drewry Foy.....Barbour.
Paul Shields Haley.....Walker.
Arthur Flournoy Jackson.....Georgia.
Myron Daniel Kahn.....Lee.
Howard Malcolm Kilpatrick.....Georgia.
Karl Edward Lindrose.....Mississippi.
Abram Hill Mitchell.....Lee.
Isaac Lenoir Moore.....Lee.
Henry Edward Werner.....Texas.
Gaius Whitfield.....Marengo.

FRESHMAN CLASS.

Oliver Hannibal Alford.....Marshall.
William Warren Askew.....Georgia.
Clyde Allen Collins.....Hale.
Jesse Duncan Elliott.....Wyoming.
Morris Ketchum.....Florida.
James Allen Kyser.....Dallas.
Henry Bigham Park.....Georgia.
Richard Blount Shepard.....Mobile.
Jonathan Render Thomas.....Lee.
Walker Dorr Willis.....Florida.
John Eyers Davis Yonge.....Florida.

CATALOGUE OF STUDENTS,

FOR THE SESSION OF 1899-1900.

GRADUATE STUDENTS.

[*Residence in Alabama when State is not given.*]

NAME.	RESIDENCE.
Robert Higgins Adams	Pike.
Bailey Edgar Brown	Morgan.
Toccoa Cozart	Montgomery.
George Webster Duncan	Lee.
Arthur Henry Feagin	Barbour.
Kate Meade Lane	Lee.
Richard Harris Little	Tuskaloosa.
Thomas Hennington McAdory	Jefferson.
Isham Fennell McDonnell	Madison.
Julian Berry Oglesby	Georgia.
William Oscar Scroggs	Georgia.

UNDERGRADUATE STUDENTS.

SENIOR CLASS.

Frank Hunter Anderson	Bullock.
William Lawrence Anderson	Montgomery.
Fletcher Ashcraft	Lauderdale.
Malcolm Alfred Beeson	Etowah.
John Samuel Black	Lee.
Guy French Boyd	Lee.
Jesse Wright Boyd	Lee.
Millard Morse Brooks	Escambia.
Edwin Bukofzer	Tennessee.
Judson Lamar Burke	Lee.
Andrew Crozier Cameron	Jefferson.

Frank Bovard Chapman.....Louisiana.
Sallie McGehee Clark.....Montgomery.
Asbury Nicholson Culver.....Lee.
Emma Beall Culver.....Lee.
William Crawford Dowdell.....Lee.
Ellis Madison Duncan.....Franklin.
Luther Noble Duncan.....Franklin.
Rutherford Sylvanus Finch.....Montgomery.
John Jefferson Flowers.....Butler.
Sherman Guy Forbes.....Dale.
Erle Humphreys Foy.....Barbour.
Bertha Mae Grout.....Lee.
Roland B. Hall.....Georgia.
Harry Young Hall.....Jefferson.
Charles Lewis Harold.....Escambia.
Edward Zellars Heard.....Lee.
Mabel Heard.....Lee.
Mary Katherine Hollifield.....Lee.
George Martin Illges.....Montgomery.
John Paul Illges.....Georgia.
John William Jepson.....South Carolina.
Walter Eldrade Johnson.....Madison.
Moses Frank Kahn.....Lee.
Wilbur Edrald Kelley.....Jefferson.
Henry Deas Lesesne.....Mobile.
John Maples.....Russell.
William Christopher Martin.....Barbour.
Enoch Marvin Mason.....Lee.
James Hardie McGehee.....Montgomery.
Kenneth Bethune McKenzie.....Butler.
Graham Edwin Merchant.....Lee.
Edward Andrew Miller.....Marshall.
William Livingston Neill.....Jefferson.
Charles Wellington Nixon.....Tennessee.
William Forney Osburn.....Lee.

Hiram Perry Powell.....Georgia.
Fleming James Rigney.....Madison.
James Richard Rutland.....Chambers.
William Stowe Rutledge.....Lee.
Frederick Blount Shepard.....Mobile.
Mary Robbins Sampey.....Conecuh.
John Winfred Shuff.....Talladega.
Joseph Manning Steiner.....Butler.
Horace Ware.....Calhoun.
Moses Conrad Wright.....Macon.

JUNIOR CLASS.

Robert Tanner Arnold.....Florida.
Berschall Winston Bass.....St. Clair.
Frank Carlisle Bivings.....Georgia.
Kenneth Bradford.....Montgomery.
Thomas Bragg.....Lee.
Samuel Hamner Browne.....Tuskaloosa.
Salmon Holmes Burns.....Lee.
John Isham Dorsey.....Lee.
William Hamilton Eagar.....Winston.
Eugene Flynn Enslen.....Jefferson.
LeRoy Madison Felton.....South Carolina.
John Drewry Foy.....Barbour.
William Alexander Frazer (c).....Lee.
James Olney Goggans.....Tallapoosa.
Walter Lee Greene.....Lee.
William Hope Haigler.....Montgomery.
Paul Shields Haley.....Walker.
Leslie Murphy Hand.....Sumter.
Alexander Cameron Hannon.....Montgomery.
Michael Smith Harvey (c).....Lee.
Charles Henry Haynes.....Bullock.
Daniel Hagood Haynes.....Dallas.
James Kelly Haynie.....Montgomery.

(c) Conditioned.

Arber Samuel Hertz.....Georgia.
Robert Holland Hood.....Jefferson.
Arthur Flournoy Jackson.....Georgia.
James Baxter Jackson.....Lee.
Jefferson Franklin Jones.....Sumter.
Myron Daniel Kahn.....Lee.
Claude Kauffman.....Mobile.
Emmett Stephens Killebrew.....Dale.
William Reid Lancaster.....Lee.
John Talbert Letcher.....Macon.
Karl Edward Lindrose.....Mississippi.
Daniel Stacy Martin.....Barbour.
Walter Deems McCrary.....Lee.
William Boyd McGehee.....Montgomery.
Benjamin Baldwin Meriwether.....Montgomery.
Abram Hill Mitchell.....Lee.
Isaac Lenoir Moore.....Lee.
Merrill Hastings Moore.....Montgomery.
William Louis Noll.....Tennessee.
Dorsey Julian Parker.....Escambia.
James Cochran Phelps.....Lee.
James Blackmon Powell.....Bullock.
Shepherd Harrison Roberts.....Montgomery.
Oscar Menderson Schloss.....Morgan.
Lyman Hall Shaw.....Sumter.
Henry Alexander Skeggs.....Morgan.
John Hunt Skeggs.....Morgan.
Matthew Scott Sloan.....Mobile.
Holland McTyeire Smith.....Lee.
Louis Sternfeld.....Montgomery.
Godfrey Rhodes Thomas.....Sumter.
Manly Curry Turpin.....Virginia.
Henry Edward Werner.....Texas.
Leonidas Wharton.....Cherokee.
Gaius Whitfield.....Marengo.
Jere Crawford Williams.....Lee.

John Rutledge Williams.....Jefferson.
Edward Houston Wills.....Lee.

SOPHOMORE CLASS.

Oliver Hannibal Alford.....Marshall.
William Warren Askew.....Georgia.
Charles Homer Billingsley.....Elmore.
Ellerslie Wallace Bullard.....Calhoun.
Victor Hugo Clements.....Limestone.
William Cruse Coles.....Marshall.
Clyde Allen Collins.....Hale.
Robert Geoghegan Dawson.....Montgomery.
Jesse Duncan Elliott.....Minnesota.
Marvin Ellis.....Morgan.
James Douglas Farley.....Lee.
Clarence Edmund Feagin.....Bullock.
David Fleming (c).....Montgomery.
Harold LaVan Fitch.....Wilcox.
William Peace Gaddis.....Elmore.
James Browder Garber.....Hale.
William Holt Glenn.....Lee.
Arthur Rodfer Gray.....Florida.
Jeremiah Warren Gwin.....Jefferson.
William Houston Gwin.....Jefferson.
William Bulger Hamilton.....Elmore.
Clifton Duane Haynie.....Lee.
William Tillman Heard.....Lee.
Oscar Lynn Henry.....Marshall.
Franklin Jerome Houston.....Jefferson.
Mell Frazer Jackson.....Lee.
Collins James Johnson.....Missouri.
Albert Sidney Johnson.....Colbert.
Morris Ketchum.....New York.
James Allen Kyser.....Dallas.
Richard Hartwell King.....Colbert.
Martin James Lide.....Dallas.

(c) Conditioned.

Gaston Joel Lipscomb.....Marengo.
Earle Irwin McBryde.....Wilcox.
Henry Bigham Park.....Georgia.
Douglass Welles Peabody.....Mobile.
William Marcus Peters.....Perry.
Edgar Johnson Pierce.....Bullock.
Wallace Powers Pruitt (c).....Lowndes.
Daniel Syers Robertson.....Chambers.
Richard Blount Shepard.....Mobile.
Julian Cassius Smith (c).....Mobile.
George Waddell Snedecor.....Jefferson.
William Swift Sherrill.....Limestone.
Siddons Stollenwerck.....Perry.
John Griffin Swanson.....Macon.
Enrico Alfonso Washington.....Georgia.
Clifford Noble Wallace.....Elmore.
John Osceola Webb.....Webb.
Walker Dorr Willis.....Florida.
Forney Renfro Yarbrough.....Georgia.
John Eyres Davis Yonge.....Florida.

FRESHMAN CLASS.

Auber Faust Adams.....Montgomery.
George Whitfield Allen.....Jefferson.
Albert Miner Avery.....Florida.
Earnest Stakely Ayers.....Calhoun.
Adolphus Berry.....Tallapoosa.
Marshall Leonard Bize.....Georgia.
Johnson Wilson Black (c).....Mobile.
Wallace Edward Brewster.....Georgia.
Cecil Battle Brown.....Pike.
Edward Jeffeson Bruister.....Choctaw.
William Jefferson Bruister (c).....Choctaw.
John Mangum Buchanan.....Lee.
Harry Walter Campbell.....Tennessee.
Walter Brooks Cawthon (c).....Mobile.
Louis Hamburger Chandler (c).....Montgomery.

(c) Conditioned.

William Julius James Chase (c).....Georgia.
Dudley Chipley.....Florida.
Earl Cline.....Jefferson.
Sidney Cornell.....Jefferson.
Charles Sanders Culver.....Lee.
Oscar Fitzalen Cunningham (c).....Lee.
Travers Daniell.....Etowah.
William Abler Darden.....Calhoun.
Howard Ellis Davis.....Mobile.
William Watson Davis.....Mobile.
Thomas Joseph Dowdell.....Montgomery.
William Eugene Finch.....Florida.
James William Flanagan.....Lee.
Frank Flinn.....Montgomery.
John Hope Fuller (c).....Escambia.
Horace Bright German (c).....Tennessee.
Charles Belshaw Goldthwaite.....Pike.
William Lanier Halsey.....Madison.
Henry Clift Hawkins.....Lee.
Earnest Cecil Haynie.....Lee.
Bell George Hazard.....Calhoun.
George Bloise Hill.....Talladega.
Alexander Grice Horn.....Sumter.
Charles Henry Howle.....Calhoun.
William Dana Hubbard.....Dallas.
John Blevins Hudnall.....Kentucky.
Garrett Newton Hudmon.....Lee.
John David Hudson.....Lee.
James Daughtry Hudson.....Georgia.
Frank Edward Hunt.....Jefferson.
Arthur Jacobs.....Jefferson.
Albert Jefferson.....Georgia.
Walter Henry Jones.....Pike.
Ira LaFayette Jordan.....Elmore.
William Micou Jordan.....Elmore.

(c) Conditioned.

William George Karnathan.....Choctaw.
Roy Kauffman.....Mobile.
Walter Joseph Knight.....Mobile.
Oscar Jennings Knox (c).....Lee.
Carl Lay.....Etowah.
Percy McLean Marshall.....Georgia.
John Van Valkenburg Matthews.....Madison
Thomas Hatcher Matson.....Talladega.
Ernest Linnwood Maybery.....Macon.
Allen Davis McLain.....Lee.
Louis Hunt McCants (c).....Louisiana.
Christian McDevitt.....Pennsylvania.
Henry Miller.....Escambia.
Roscoe Milner (c).....Georgia.
Robert Peyton Mims (c).....Jefferson.
John Harris Mitchell.....Georgia.
William Lee Mitchell.....Madison.
Frank Wallace Moseley.....Dallas.
Gilbert Meyer Newhouse (c).....Marengo.
Erastus Jonathan Parsons.....Jefferson.
Christopher Henderson Pinson.....Sumter.
Albert Wellman Pratt (c).....Madison.
Gregg Newton Preuit.....Lawrence.
Russell Bates Preuit.....Lawrence.
Albert Davis Rambo.....Montgomery.
George Daniel Randle.....Jefferson.
James Henry Ramdle.....Bullock.
John Patrick Rembert.....Mississippi.
Samuel Rembert.....Tennessee.
Roy Gustavus Rhodes.....Marengo.
Tod Hewitt Roberts.....Jefferson.
Nelson Horatio Romero.....Cuba.
Wilbur Barnes Roney (c).....Macon.
Irving Jefferies Roseborough.....Bullock.
John Van Ryan.....Madison.
Edward Prescott Rutland.....Lee.

(c) Conditioned

William Watson Rutland.....Chambers.
Clifford Philip Rutledge.....Lee.
George Washington Smith.....Lee.
Benjamin Marion Smith.....Cherokee.
Quinton Sorrell.....Talladega.
Edward Taylor.....Marengo.
Louis Earle Thornton.....Florida.
William Lawson Thornton.....Talladega.
James Feagin Tompkins.....Lee.
Filo Harris Turner.....Florida.
George Baker Tyson.....Montgomery.
Ivy Whitson Walker.....Colbert.
Fletcher Peavy Whatley.....Lee.
Walter Whitman (c).....Lee.
Walter Harry Wiley.....Pike.
Henry Mathews Yonge.....Florida.

SPECIAL AND IRREGULAR STUDENTS.

Abbreviations: Ph—Pharmacy; E. & M. E.—Electrical and Mechanical Engineering; C.—Chemistry; Ag.—Agriculture; C. E.—Civil Engineering; M. A,—Mechanic Arts.

NAME.		RESIDENCE.
Milton Columbus Baldridge	PH	Madison.
Idaline Bell		Lee.
Arthur Bernard Beringer	PH	Barbour.
Parham Benjamin Borden		Hale.
Peter Alexander Brannon	PH	Russell.
Walter Leslie Bryant	PH	Georgia.
William James Cameron	M. A	Jefferson.
Fredrico Cardenas		Cuba.
Arthur Ernest Carter	PH	Shelby.
Edwin Weaver Caro	M. A	Florida.
David James Castleman	E. & M. E	Hale.
Herschel Henry Conner		Macon.
Lewis Henry Crumpler	PH	Talladega.
Pearce Henry DeBardelaben	PH	Lee.
Warren Alfred Dewees		Tennessee.

(c) Conditioned.

Rufus White Butler.....Lee.

William Edwards.....AG.....Florida.
William Bullock Fleming.....Montgomery.
Ingraham Barron Foster.....Perry.
John Sears Francis.....Jefferson.
Swoope Darrow Gilbert.....E. & M. E..Lauderdale.
Frank Crouch Green.....Georgia.
Edward Putney Guerrant.....AG....Kentucky.
Abram Debow Given.....PH.....Madison.
William Weatherly Hannon.....Montgomery.
Bunn Young Hill.....Georgia.
Blair Hughes.....Jefferson.
Edwin DeWitt Huguley.....Chambers.
Clarence Luther Jenkins.....Talladega.
Edward Kelly.....Montgomery.
Carlos Lacayo.....Nicaragua, C. A.
John Alexander Lanford.....PH.....Sumter.
John Fulton Lanier.....Madison.
Howard Metcaff Letcher.....PH.....Macon.
Mary Emma Little.....Lee.
Thomas Leonard Macon.....Elmore.
George Mathews Marks.....Montgomery.
Oliveria Masvidal.....MA.....Cuba.
Mary Elinor Mitchell.....Calhoun.
James Crowder Moore.....PH.....Lee.
Martin Theopilus Moody.....PH.....Calhoun.
James Frazer McNamee.....Lee.
Peter Preer Myhand.....VET. SCI.....Lee.
Carlyle Nisbet.....E. & M. E.....Georgia.
Walter Cornelius O'Neill.....Sumter.
Elbert William Patterson.....Sumter.
William Burns Paterson.....AG. & H...Montgomery.
Morris Pelham.....E. & M. E....Calhoun.
Israel Pickens.....PH.....Hale.
Walter Gardner Pitts.....Russell.
Henry Virgil Reid.....PH.....Barbour.

Alston Keith Rennie.....PH.....Dallas.
Harvey Owen Sargent.....Franklin.
Wilbur Allen Sellers.....Bullock.
George Clement Sequeira.....Nicaragua, C. A.
Hans Schmidt.....Jefferson.
Maurice Carbery Shannon.....Jefferson.
Sidney Ewing Simpson.....E. & M. E..Montgomery.
Walter Ellis Sistrunk.....PH.....Elmore.
Bernard Horace Smith.....PH.....Lee.
Henry Sleeth Stickle.....Lauderdale.
Richard Franklin Valentine....E. & M. E.....Barbour.
Judson Franklin Webb.....Calhoun.
James Waldo Woodruff.....E. & M. E.....Georgia.

SUB-FRESHMAN CLASS.

Raymond Albertson.....Jefferson.
Jesse Drew Beale.....Montgomery.
Frank Gordon Bell.....Lee.
William Bell.....Lee.
Marvin Fitzpatrick Boykin.....Lee.
Edward Worswick Braswell.....Georgia.
Richard Young Buchanan.....Georgia.
Frank Turner Cammack.....Mobile.
William Henry Chambers.....Colbert.
John David Foshee.....Escambia.
Thomas Claud Hawkins.....Elmore.
Percy Wilbur Hudson.....Lee.
William Inman Huff.....Etowah.
Arthur Dean Jones.....Lawrence.
Woodson Jones.....Dallas.
Edward James Lane.....Talladega.
Thomas Reeves Leavell.....Greene.
Frank Gordon Lyon.....Lowndes.
Andrew Lee Martin.....Lee.

Richard Matthews.....Jefferson.
Howard Wilbur McMakin.....Russell.
Heywood McFaddin.....Dallas.
Edward Adolphus Miles.....Mobile.
Welton Nabors *.....Shelby.
Enoch Lawrence McCormick Pruitt.....Lowndes.
Pope Pryor Preuit.....Colbert.
Forney Renfro.....Lee.
Richard Hoskins Roberts.....Sumter.
Oscar Early Rutland.....Lee.
John Deal Steele.....Greene.
Benjamin Marion Stewart.....Cherokee.
Henry Jefferson Sullivan.....Washington.
John Hughes Thomason.....Calhoun.
Dudley Chipley Thornton.....Florida.
George Taylor Williamson.....Lee.
Jacob Wolff.....Montgomery.
Forney Renfro Wright.....Lee.

SUMMARY.

Graduates	11
Senior Class	56
Junior Class	60
Sophomore Class	52
Freshman Class	102
Special and Irregular Students	65
Total in College Classes	346
Sub-Freshman Class	38
Total	384

* Deceased.

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	316	Geology	55
History	205	Civil Engineering	12
French	28	Electrical Engineering.	61
German	33	Mechanical Engineer'g.	57
Latin	137	Biology	24
Mental Science	26	Drawing	230
Political Economy	53	Mechanic Arts	258
Mathematics	293	Military Tactics	344
Chemistry	156	Mineralogy	19
Chemical Laboratory	141	Physical Laboratory	42
Agriculture	128	Physiology	55
Physics	187	Veterinary Science	39
Botany	82	Pharmacy	37
Horticulture	33	Bacteriology	11

RESIDENCE.

Alabama	318
Georgia	26
Florida	15
Tennessee	7
Cuba	3
Nicaragua	2
Kentucky	2
Mississippi	2
Louisiana	2
South Carolina	2
Missouri	1
Texas	1
Virginia	1
Pennsylvania	1
New York	1

MILITARY ORGANIZATION.

1899-1900.

President.

W. L. BROUN.

Commandant.

COL. B. S. PATRICK.

Surgeon.

J. H. DRAKE.

Battalion Staff.

Cadet Captain H. P. POWELL, Assistant to Commandant.
Cadet 1st Lieutenant J. J. FLOWERS, Adjutant.
Cadet 1st Lieutenant J. W. SHUFF, Quartermaster.
Cadet 2nd Lieutenant E. M. MASON, Assistant Adjutant.
Cadet Sergeant J. D. FOY, Sergeant Major.
Cadet Sergeant G. WHITFIELD, Quartermaster Sergeant.

Cadet Captains.

1. F. ASHCRAFT,
2. G. F. BOYD.
3. W. E. KELLY,
4. J. L. BURKE.

Cadet First Lieutenants.

1. K B. MCKENZIE,
2. J. P. ILLGES,
3. A. C. CAMERON,
4. J. H. MCGEHEE,
5. R. B. HALL,
6. J. W. BOYD,
7. C. W. NIXON,
8. W. L. ANDERSON.

Cadet Second Lieutenants.

1. S. D. GILBERT,
2. R. S FINCH,
3. J. A. LANFORD,
4. W. C. DOWDELL,
5 M. M. BROOKS.

Cadet First Sergeants.

1. S. H. ROBERTS,
2. A. F. JACKSON,
3. M. S. SLOAN,
4. E. H. WILLS.

Cadet Sergeants.

1. M. H. MOORE,
2. W. B. MCGEHEE,
3. J. B. POWELL,
4. W. L. GREENE,
5. P. S. HALEY,
6. M. C. TURPIN,
7. B. B. MERIWETHER (Color Sergeant)
8. I. L. MOORE,
9. F. C. BIVINGS,
10. R. T. ARNOLD,
11. G. R. THOMAS,
12. C. H. HAYNES,
13. D. J. PARKER,
14. D. H. HAYNES,
15. T. BRAGG,
16. J. T. LETCHER,
17. W. R. LANCASTER,
18. E. S. KILLEBREW.

Cadet Corporals.

1. W. D. WILLIS.
2. J. E. D YONGE.
3. J. A. KYSER.
4. J. D. ELLIOTT.
5. W. M. ASKEW.
6. G. W. SNEDECOR.
7. C. A. COLLINS.
8. J. B. GARBER.
9. W. C. COLES.
10. R. B. SHEPARD.
11. H. B. PARK.
12. D. W. PEABODY.
13. R. G. DAWSON.
14. J. D. FARLEY.
15. F. J. HOUSTON.
16. M. KETCHUM.
17. S STOLLENWEROK.

THE A. P. I. CADET BAND.

M. THOS. FULLAN, Bandmaster.
J. A. LANFORD, Principal Musician.

A. M. AVERY.
F. C. BIVINGS.
W. J. CAMERON.
T. DANIEL.
W. A. DEWEES
M. ELLIS.
W. H. GLENN.
A. JEFFERSON.
I. L. JORDAN.
M. D. KAHN.
M. F. KAHN.
D. W. PEABODY.
E. J. PIERCE.
G. SEQUIERA,
L. STERNFELD.
I. W. WALKER.
H. E. WERNER.

R. T. ARNOLD, Drum Major.

Cadets of the Graduating Class who were reported to the Adjutant General, U. S. Army, for publication in the "Official Army Register" as having ranked highest in the Military Department:

1889.

A. ST. C. DUNSTAN.
B. H. CRENSHAW.
A. J. BURR.

1890.

F. D. MILSTEAD.
J. W. BIVINS.
G. W. EMORY.

1991.

L. E. BAKER.
C. C. JOHNSON.
F. J. BIVINS.

1892.

H. F. Dobbin.
A. L. Jones.
C. L. Brown.

1893.

Joel Dumas.
C. H. Smith.
J. F. Webb.

1894.

C. S. Andrews.
P. P. McKeown.
R. T. Dorsey.

1895.

S. L. Coleman.
H. H. Smith.
L. B. Gammon.

1896.

A. L. ALEXANDER.
W. L. Fleming.
W. M. Williams.

1897.

P. G. Clark.
G. M. Holley.
G. N. Mitcham.

1898.

A. H. Clark.
A. McB. Ransom.
Jno. Haralson.

1899.

I. F. McDonnell.
A. H. Feagin.
T. W. Wert.

REQUIREMENTS FOR ADMISSION.

All applicants for admission should present testimonials of good moral character, and those who come from other colleges must present certificates of honorable discharge.

To enter the freshman class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography and History of the United States.

2. English—(a) English grammar as contained in any standard text. (b) An examination upon sentences containing incorrect English. (c) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar, and division into paragraphs.

(a) *Reading.* The composition in 1900 will be upon subjects drawn from one or more of the following works in English Literature: (1) Hughes's *Tom Brown at Rugby;* (2) Southey's *Life of Nelson;* (3) Shakespeare's *Julius Caesar;* (4) Longfellow's *Evangeline;* (5) Scott's *Ivanhoe;* (6) Shakespeare's *Merchant of Venice;* (7) Irving's *Sketch Book;* (8) Macaulay's *Essay on Milton;* (9) Scott's *Marmion*; (10) Dickens's *David Copperfield.*

The candidate will be required to present evidence of a general knowledge of the subject matter, and to answer simple questions on the lives of the authors. This part of the examination is intended to test only a general knowledge of the substance of the books.

(b) *Study and Practice.* This part of the examination presupposes the thorough study of the style of the work, and will be upon *Julius Cæsar* and the *Essay on Milton.*

Preparation and examination on these works will be necessary before the student is classed as regular in any course.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers; the metric system; percentage, including interest and discount; proportion. (b) Algebra to quadratic equations; especial preparation is urged in *fundamental operations, factoring, multiples, divisors* and *fractions;* one book of geometry.

4. Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Cæsar, in addition to the above subjects.

In pronouncing Latin it is recommended that ā be pronounced as in *father*, ă as the *a* in *Cuba;* ē as in *prey*, ĕ as in *men;* ī as in *machine*, ĭ as in *cigar;* ō as in *old*, ŏ as in *obey;* ū as in *rule*, ŭ as in *full;* j as *y* in *yard;* c always as *k* in *king;* g always as *g* in *get.*

For admission to the higher classes, students should be prepared to stand a satisfactory examination in all of the studies of the lower classes, as shown in the course of study. Students applying for admission to the sophomore class will be examined in mathematics through logarithms in Algebra, and on seven books in geometry. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on those subjects.

ADMISSION ON CERTIFICATE.

Applicants will be admitted without examination on presenting a certificate from any of the CERTIFICATE SCHOOLS named herein.

The following educational institutions having made application to be correlated to this College and having presented an approved course of study, are hereby declared to be CERTIFICATE SCHOOLS, and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the fresh-"man class *without examination* upon the certificate of the presi-"dent or principal showing definitely that such students have com-"pleted satisfactorily all the studies required for admission, as "stated in the catalogue and are otherwise admissible."

The privilege of admitting students to the Sophomore class on certificate will be granted only to those approved schools that have had a continuous existence for five years or more and have previously had pupils admitted to that class without conditions.

The following form of certificate will be used:

I hereby certify that A....., B..... has attended the (*name the school or academy*) for.....years and has studied the following subjects:

in History.....(*name the books*)
in English.....(*name the books*)
in Algebra.....(*state amount accomplished*)
in Geometry.....(*state amount accomplished*)
in Latin.....(*state books read*)

and having passed a satisfactory examination on these subjects as required in the Catalogue for admission to the.....class, I recommend him for the same.

CERTIFICATE SCHOOLS.

University Military School, Mobile.....J. D. Wright.
Verner Military Institute, Tuscaloosa.....W. H. Verner.
University School, Montgomery.....J. M. Starke.
Mt. Willing High School, Mt. Willing.....
State Normal School, Jacksonville.....C. W. Daugette.
Male Academy, Huntsville.....Puryear & Wyatt.
Furman Academy, Livingston.....L. A. Cockrell.
High School, Opelika.....J. M. Smallwood.
University Military School, Clanton.....E. Y. McMorries.
N. A. Agricultural School, Athens.....M. K. Clements.
W. Ala. Agricultural School, Hamilton.....
Eutaw Male Academy, Eutaw.....H. C. Horton.
Boys' High School, Anniston.....H. C. Gunnels.
Taylor's School, Birmingham.....W. P. Taylor.

Gaylesville High School.....John R. Ray.
Carrollton Academy.....L. V. Rosser.
Ninth District Agricultural School, Blountsville.....
Gadsden High School.....I. W. Hill.
Boyd High School, Ramer.....B. H. Boyd.
Dadeville High School.....J. D. Lane.
Prattville High School.....A. W. Holstun.
Eufaula High School.....F. L. McCoy.
Union Springs High School.....J. M. Sanders.
Montgomery High School.....C. L. Floyd.
Calera Academy.....C. C. Slaton.
Southern Agricultural School, Abbeville.....J. V. Brown.

ADMISSION OF YOUNG WOMEN

The privilege of becoming students in this college is granted by the Trustees to young women of mature mind and character, on the following conditions:

The applicant must be eighteen years of age, and if a candidate for a degree, be able to pass a satisfactory examination in each of the four subjects as named below.

If the applicant is a candidate for admission as a special or irregular student, she must be able to pass a satisfactory examination in two of the subjects named.

(a) In English—Proficiency in spelling and punctuation; Grammar (Lockwood-Whitney); Rhetoric (Lockwood's Lessons and Genung's Outlines of Rhetoric); Scudder's Masterpieces of American Literature; Syle's From Milton to Tennyson.

For requirements in reading in literature see page 34.

(b) In History—Macy's Our Government; Chambers's History of the United States; Myers's General History.

(c) In Mathematics—Arithmetic; Algebra, including quadratic equations, logarithms and series; Plane and Solid Geometry; Plane and Analytic Trigonometry, as in Wentworth.

(d) In Latin—Grammar, including the forms and syntax; Jones's Latin Prose Composition; translation of selections from Cæsar, Nepos, Virgil, Cicero's Orations, Cicero's Letters, or the equivalent.

The equivalents of these subjects, as in above text-books, may be substituted.

Botany will constitute a required part of the general course for young women who are candidates for a degree.

When admitted, upon complying with the conditions above stated,

they may enter upon the study of any subject taught in the College and join any class, for which, upon examination, they may be found qualified. The only condition imposed will be that they engage in earnest study, and attend the exercises regularly. They will board in the town with private families and attend college only at the hours of their exercises.

The Trustees authorize the Faculty to admit a candidate for a degree at the age of seventeen, provided she is able to comply with all the requirements for admission in the four subjects named and the application meets with its approval.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 12th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the freshman class are admitted to the sub-college department, provided they are fifteen years of age, and are found after examination qualified to profit by the instruction given. Those who, after admission, are inattentive to their studies, and neglectful of their duties will be required to withdraw, but those who are studious and make sufficient progress will be advanced to full admission to the Freshman class when they are qualified to pass satisfactorily the required examinations.

Students, upon their arrival at Auburn, will report imemdiately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing, and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of electing studies in the lower classes is not granted to young students nor to their parents. The Faculty will assign a student, on admission, to that class of a prescribed course for which he is qualified; and for special reasons, approved by the Faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age that are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study for which they may be qualified.

A student who does not take all the studies in a class of one of the degree courses, as prescribed in the catalogue, and is permitted to take an irregular course, will be assigned to a member of the Faculty, who will act as his special adviser, and when his course of study has been approved by the Faculty no other change will be permitted without the endorsement of his adviser.

Regular students who fail to pass satisfactory final examinations in any one study become irregular students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students, candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

ADMISSION TO HIGHER CLASSES.

At the beginning of each term a student in the sub-freshman class may, on application approved by the Faculty, be examined for admission to the freshman class in history, English, mathematics, or Latin, and if his examination is satisfactory in any subject, he will be admitted to the freshman class in that subject only.

Students who have completed satisfactorily all the studies of the sophomore class, as prescribed in the catalogue, in any one of the regular degree courses, can enter, without condition, the junior class in any course, except in the general course, or the course in pharmacy, in which Latin is required.

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Students who are admitted to the junior class from other institutions, on examination in English, Latin, and mathematics, and who have not completed all the studies of the sophomore class, in order to graduate, will be required to complete the course in chemistry and history as taught in the sophomore class.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical, and Natural Sciences, with their applications; Agriculture; Biology; Mechanics, Astronomy, Mathematics; Drawing; Civil, Electrical, and Mechanical Engineering; Physiology and Veterinary Science; Pharmacy; English, French, German, and Latin Languages; History, Political Economy; Mental and Moral Sciences.

These studies are arranged in regular courses so as to offer a liberal and practical education as a preparation for the active pursuits of life.

There are five degree courses for undergraduates, each leading to the degree of Bachelor of Science, (B. Sc.) and requiring four years for its completion.

I. COURSE IN CHEMISTRY AND AGRICULTURE.

II. COURSE IN CIVIL ENGINEERING.

III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

IV. GENERAL COURSE.

V. COURSE IN PHARMACY.

There are also three partial courses, each requiring two years for its completion:

VI. TWO-YEAR COURSE IN AGRICULTURE.

VII. TWO-YEAR COURSE IN MECHANIC ARTS.

VIII. TWO-YEAR COURSE IN PHARMACY.

Course I. includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose

to devote themselves to agriculture or chemical pursuits.

Course II. includes the principles and applications of the sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course III. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged for the profession of electrical and mechanical engineering.

Course IV. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching or in some commercial or professional business.

Course V. includes, besides the general education of course IV. in the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Courses VI. VII. VIII. have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, will be awarded a certificate of proficiency in said subject.

Students who complete either of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every candidate for a degree will be required to stand this special examination during the second *term* of the Senior year.

Declamation and themes or orations are required of all regular students pursuing courses leading to a degree.

POST-GRADUATE COURSES.

The post-graduate degrees are—MASTER OF SCIENCE, MINING ENGINEER, CIVIL ENGINEER, ELECTRICAL AND MECHANICAL ENGINEER, AND PHARMACEUTICAL CHEMIST.

A more extended post-graduate course of study may be taken by a graduate of this College or of any other institution of equal grade. The completion of a course which leads to a post-graduate degree requires one year's residence at the College, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the Faculty.

The candidates must also present to the Faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination at the close of each term on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the Faculty.

The subject of the thesis must be submitted to the Faculty for approval prior to January 1st, and the thesis given to the professor by April 1st.

Applicants for post-graduate degrees are subject to the general regulations as other students, but are exempt from all military duty.

The following courses are prescribed for the degrees named:

Mining Engineer.—Students who have received the degree of B. Sc. in engineering, civil, or electrical and mechanical, or who have prosecuted an equivalent course of study, can enter upon a special course of mining engineering, which includes the following subjects of study:

Industrial Chemistry, Analytic Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, with practical work in the field, Mining Machinery with the applications of steam and electricity to the various operations connected with the exploitation of mines.

The student, if a candidate for a degree, will also be required to prosecute the necessary studies in that course of engineering in which he has not graduated.

This course of study will be under the charge of the professors of geology, chemistry, civil, electrical and mechanical engineering.

Civil Engineer.—Civil Engineering, Mathematics, Analytical Mechanics.

Electrical and Mechanical Engineer.—Electrical Engineering, Mechanical Engineering.

Pharmaceutical Chemist.—Pharmacy and Chemistry.

Master of Science.—Studies in three departments, in two of which the candidates must have previously completed the full course of the senior class; or in special cases, with the approval of the Faculty, a student may devote his full time to work in one or two departments.

Special Students in Post-Senior Studies.—Students who are not graduates, but are qualified in special subjects to prosecute post-senior studies, and desire to prepare themselves more thoroughly for professional or special work in any one of the departments of engineering, in chemistry or pharmacy, veterinary science, or other subject in which instruction is given may, when qualified, with approval of the faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

SPECIAL ONE-YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of scientific agriculture.

PHOTOGRAPHY.

During the session there will be given by Professor Mell a course of twelve lectures on photography. This course will be elective, and the instruction will be open to any student that may desire to learn how to make pictures. It will be necessary for each student to provide himself with an outfit that will cost from $11.50 to $16.00.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this Institute, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CHEMISTRY.
II. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.
III. AGRICULTURE.
IV. BOTANY.
V. MINERALOGY.
VI. BIOLOGY.
VII. TECHNICAL DRAWING.
VIII. MECHANIC ARTS.
IX. PHYSICS.
X. ELECTRICAL ENGINEERING.
XI. MECHANICAL ENGINEERING.
XII. PHYSIOLOGY AND VETERINARY SCIENCE.
XIII. PHARMACY.

NOTE.—Special work in English or History may be taken by students in the general course as a substitute for laboratory work.

I.—COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
3. Drawing.	3. Drawing.	3. Drawing.
2. Physiology.	2. Physiology.	2. Physiology.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry	3. Industrial Chemistry	3. Industrial Chemistry
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
4. Botany (Lab'y).	4. Botany (Lab'y).	4. Botany (Lab'y).
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
2. Clinical Lab'y.	2. Clinical Lab'y.	2. Clinical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Econo'y (c)	2. Political Economy.
2. Mental Science (d).	2. Mental Science (d).	2. Mental Science (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
5. Biology.	5. Biology.	5. Biology.
2. Agricultur'l Ch'm't'y.	2. Agricultur'l Ch'm't'y.	2. Agricultur'l Ch'm't'y.
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
2. Clinical Lab'y.	2. Clinical Lab'y.	2. Clinical Lab'y.

(a) Begins March 1st. (b) Also Practical Agriculture.
(c) Begins Feb. 15th. (d) French or German may be substituted.

NOTE.—There should be in the schedule for the Sophomore Class—"Mathematics, 5 exercises for each term."

II.—COURSE IN CIVIL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture (b).	2. Agriculture (b).	2. Agriculture (b).
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French, or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics	5. Mathematics	5. Mathematics
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y,Mech. Arts (c)	6. Lab'y,Mech. Arts (c)	6. Lab'y,Mech. Arts (c)
1. Field Work, Engin'g.	1. Field Work, Engin'g.	1. Field Work, Engin'g.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literat'e (d)	2. Political Econo'y (d)	2. Political Econo'y (d)
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.

(a) Begins March 1st.
(b) For Agriculture may be substituted Physical Laboratory.
(c) Or Mineralogy.
(d) For Eng. Lit. and Pol Econ. may be substituted French or German.

5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
4. Mech. Eng., Lab'y. Field Work, Engin'g.	4. Mech. Eng., Lab'y. Field Work, Engin'g.	4. Mech. Eng., Lab'y. Field Work, Engin'g.

III.—COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

he numerals opposite the subjects indicate the number honrs per week. In freshman and sophomore classes the same studies are prescribed as in Course II in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French, or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
4. Electrical Engin'g.	4. Electrical Engin'g.	4. Electrical Engin'g.
3. Mech. Engineering.	3. Mech. Engineering.	3. Mech. Engineering.
4. Mechanical Drawing.	4. Mechanical Drawing.	4. Mechanical Drawing.
4. Electrical Lab'y.	4. Electrical Lab'y.	4. Electrical Lab'y.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. Eng. Literature (a).	2. Political Econo'y (a)	2. Political Econo'y (a)
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Electrical Engin'g.	5. Electrical Engin'g.	5. Electrical Engin'g.
5. Mech. Engineering.	5. Mech. Engineering.	5. Mech. Engineering.
2. Electrical Designing.	2. Electrical Designing.	2. Electrical Designing.
6. Electrical Lab'y.	6. Electrical Lab'y.	6. Electrical Lab'y.
4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.
1. Military Science.	1. Military Science.	1. Military Science.

(a) French or German may be substituted.

IV.—GENERAL COURSE.

The numerals opposite the subjects indicate number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	2. History.
5. Latin.	5. Latin.	5. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
3. Latin.	3. Latin.	3. Latin.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y Work (b).	6. Lab'y Work (b).	6. Lab'y Work (b).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Econo'y (c)	2. Political Economy.
2. Mental Science.	2. Mental Science.	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science.	1. Military Science.
6. Lab'y Work (b).	6. Lab'y Work (b).	6. Lab'y Work (b).

(a) Begins March 1st.

(b The student may elect the laboratory of any department for which he may be qualified.

(c) Begins February 15th.

V.—COURSE IN PHARMACY.

The numerals opposite the subjects indicate number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	2. History.
5. Latin.	5. Latin.	5. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mech. Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. Physics.	3. Physics.	3. Physics.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Botanical Lab'y.	4. Botanical Lab'y.	4. Botanical Lab'y.
3. English (a).	3. English (a).	3. English (a).
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
9. Pharmaceutical Lab.	9. Pharmaceutical Lab.	9. Pharmaceutical Lab.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Biology.	5. Biology.	5. Biology.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Toxicology.
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
8. Pharmaceutical Lab.	8. Pharmaceutical Lab.	8. Pharmaceutical Lab.
5. Pharmacognosy.	5. Pharmacognosy.	5. Pharmacognosy.
1. Military Science.	1. Military Science.	1. Military Science.
3. Materia Medica.	3. Materia Medica.	3. Bacteriology.

(a) Begins March 1st.
(a) French or German may be substituted.

VI—TWO-YEAR COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	3. Drawing.	3. Drawing.
12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

VII—TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agricult're.	2. Practical Agricult're.	2. Practical Agricult're.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
4. Agriculture.	4. Agriculture.	4. Agriculture.
2. Physiology.	2. Physiology.	2. Physiology.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
12. Practical Agricult're	12. Practical Agricult're	12. Practical Agricult're
3. Military Drill.	3. Military Drill.	3. Military Drill.

VIII—TWO-YEAR COURSE IN PHARMACY.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. English.	3. English.	3. Botany.
2. Physiology.	2. Physiology.	2. Physiology.
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
6. Mech. Art Lab'y. (*a*)	6. Mech. Art Lab'y. (*a*)	6. Mech. Art Lab'y. (*a*)
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
5. Pharmacognosy.	5. Pharmacognosy.	5. Pharmacognosy.
8. Pharmaceutical Lab.	8. Pharmaceutical Lab.	8. Pharmaceutical Lab.
6. Chemical Lab'y.	6. Chemical Lab'y.	7. Toxicology.
3. Materia Medica.	3. Materia Medica.	3. Bacteriology.
6. Botanical Lab'y.	6. Botanical Lab'y.	6. Botanical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(*a*) or Physical Laboratory.

SCHEDULE OF EXERCISES.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
I. 8-9	4. Algebra. 3. Latin. 1 and 2 Drawing. 1. Elec. Engine'r'g 2. Mec. Engine'r'g 1. Biology. 1. German.	3. Physiology. 4. Geometry. 3. Latin. 2. German. 1 and 2 Drawing. 2. Botany. 1. Elec. Engine'r'g 2. Mec. Engine'r'g 1 Mental Science.	4. Algebra. 3. Latin. 1 and 2 Drawing. 1. Vet. Science. 1. Elec. Engine'r'g 1. German.	4. Geometry. 3. Latin. 2. German. 1 and 2 Drawing. 2. Botany. 1. Mental Science. 1. Elec. Engine'r'g	4. Algebra. 3. Latin. 1 and 2 Drawing. 1. Veterinary Sci. 1. Elec. Engin'r'g. 1. German.	Exercises in Elocuti'n.
II. 9-10	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Latin. 1. Calculus. 1. Biology. 2. Elec. Engine'r'g	4. History. 3. Agriculture. 2. Civ. Engine'r'g. 2. Botany. 1. Physics. 2. Elec. Engine'r'g	4. English. 3. Chemistry. 2. Civ. Eugineer'g 2. Latin. 1. Calculus. 2. Vet. Science. 2. Elec. Engine'r'g	4. History. 3. Agriculture. 2. Civ. Engine'r'g. 2. Botany. 1. Physics. 2. Elec. Engine'r'g	4. English. 3. Chemistry. 2. Civ. Engine'r'g 2. Latin. 1. Calculus. 2. Mech. Engin'r'g 2. Vet. Science.	Military Drill.
III. 10-11	3. English. 2. Physics. 1. Civ. Engine'r'g. 1. Biology. 1. Latin. 1. Mec. Engine'r'g	3. History (1, 2). 3. Botany (2, 3). 1. Biology. 1. Civ. Engineer'g 4. English. 1. Mec. Engine'r'g 2. French. 2. Mec. Drawing.	3. English. 2. Physics. 1. Latin. 1. Civ. Engineer'g 1. Biology. 1. Mech. Engin'r'g	3. History (1, 2). 3. Botany (2, 3). 1. Civ. Engine'r'g 4. English. 1. Mech. Engin'r'g 2. French.	3. English. 2. Physics. 1. Civ. Engineer'g. 4. History (3). 1. Mech. Engin'r'g	Mechanic Arts. Chemical Laboratory. Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.

SCHEDULE OF EXERCISES—Continued.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
IV.	4. Physics (1, 2).	4. Latin. 3. Drawing.	4. Physics (1, 2). 4. Latin (3). 3. History (1, 2).	4. Latin.	4. Physics (1, 2).	
11–12	4. Agriculture (3). 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. English (1, 2). 1. Pol. Econ. (2, 3). 4. Mechanic Arts.	2. Agriculture. 2. Mathematics. 1. Chemistry. 1. French.	3. Botany (2, 3). 2. Mathematics. 2. Chemistry. 1. English (1, 2). 1. Political Economy (2, 3). 4. Mechanic Arts.	2. Agriculture. 2. Mathematics. 1. Chemistry. 3. Physiology. 1. French.	4. Agriculture (3) 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. MilitaryScience 4. Mechanic Arts.	3. Mechanic Arts. Chemical Laboratory. Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.
V. 12–1	4. Drawing. 3. Mathematics. 2. English. 4. Mechanic Arts. 1. Elec. Designi'g. 1. French.	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 4. Mechanic Arts. 2. German. 1. Elec. Designing 2. Anal. Chemis'ty.	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 4 Mechanic Arts 1. Elec. Designing. 2. Milit'ryTactics	3. Mechanic Arts. Chemical Laboratory. Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.
P.M. VI., VII 2–4	4. Mechanic Arts. 3. FieldWork Agr. 1 & 2 Laboratory Chemistry. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Elec. Lab. Work. Physical Labor'y.	3. Mechanic Arts 2. Mineralogical Laboratory Military Drill (*). 1. Mech. Lab'tory. Elec. Lab'y Work. 1 and 2 History.	4. Mechanic Arts. 3. FieldWork Agr. 1 & 2 Laboratory. Chem 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Ex'cis. in Elocut'n Elec. Lab. Work. Physical Labor'y.	3. Mechanic Arts 2. Mineralogical Laboratory. Military Drill (*) 1. Mech. Labor'y. Elec. Lab'y Work. 1. and 2 History.	4. Mechanic Arts. 3. FieldWork Agr. 2 French. 1 & 2 Lab. Chem. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Ex'cis. in Elocut'n Elec. Lab. Work. Physical Labor'y.	

Chapel services daily at 7:45 a. m.

Numbers prefixed denote classes—1 denotes senior, 2 junior, etc. Numbers affixed—(1), (2), (3),—denote terms.

*From 4:30 to 5:30 p. m.

DEPARTMENTS OF INSTRUCTION.

PHYSICS AND ASTRONOMY.

PRESIDENT BROUN.

PROFESSOR DUNSTAN.

The instruction is given by recitations from text-books and lectures, illustrated by experiments. The first part of the course is occupied with elementary rational mechanics, treated graphically.

This is followed by a full discussion of molecular mechanics; while due prominence is given to principles, frequent reference is made to the applications of science.

The studies of the junior class include the properties of matter, units of measure, force, work, energy, kinematics, kinetics, mechanic powers, friction pendulum, molecular forces of solids, liquids and gases, theory of undulations, heat, electricity, magnetism, etc.

The studies of the senior class include light, and astronomy.

Post-graduate Course. This includes the study of analytical mechanics, and requires a knowledge of differential and integral calculus.

TEXT-BOOKS.

Atkinson's Ganot's Physics, Young's Astronomy, Berry's History of Astronomy, Bowser's Analytic Mechanics.

PHYSICAL LABORATORY.

INSTRUCTOR H. H. KYSER.

The laboratory work includes courses for the sophomore and freshman classes, and is so arranged as to begin with a study of the systems and units of measurements and to conclude with simple experiments in heat.

The student is required to ascertain experimentally various physical laws, hence in all exercises there is something to measure. From these measurements he is required to find the law connecting the quantities involved. Results of experiments are to be entered, in tabular form, together with methods, diagrams, etc., in a laboratory record book, which each student is required to prepare. At the close of each week this book is criticised and graded according to its accuracy and neatness.

FRESHMAN COURSE.

First Term. (a) Elementary physics (mechanics and heat).
Second Term. (b) Elementary graphical statics (continued in sophomore year).
Third Term. (c) Systems and units of measurements.
(d) Simple measurements of length, surface, volume and weight.

SOPHOMORE COURSE.

First Term. (*a*) Simple measurements and designing verniers and micrometers.
(*b*) Elementary graphical statics. (*c*) Forces, moments and work.
Second Term. (*d*) Simple machines and friction (determining mechanical advantages, loss, efficiency, law, etc.).
(*e*) Pendulum and gravity. (*f*) Elasticity.
Third Term. (*g*) Liquids. (*h*) Density and specific gravity. (*i*) Gases. (*j*) Heat.

The laboratory is equipped with instruments of foreign and American manufacture, such as verniers, micrometers, cathetometers, a horizontal comparator, a Kater's reversion pendulum, balances, etc., and with all apparatus necessary to perform from 10 to 20 experiments under each of the above named groups.

MATHEMATICS.

PROFESSOR SMITH.
ASSISTANT PROFESSOR CRENSHAW.
INSTRUCTOR PATRICK.
ASSISTANT FEAGIN.

The subjects taught in the different classes in this department are as follows:

FRESHMAN CLASS. Algebra through quadratic equa-

tions and logarithms, plane geometry (six books Wentworth), original solutions of exercises.

SOPHOMORE CLASS. Algebra completed, solid geometry, plane and spherical trigonometry, surveying, mensuration.

JUNIOR CLASS. Analytical geometry, descriptive geometry.

SENIOR CLASS.—Differential and integral Calculus.

Two objects are sought to be attained: first, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given to the sophomore class in farm, town and government land surveying, dividing land, mapping, plotting, and computing areas, etc.; also in the theory, adjustment and use of instruments.

The class in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

Mensuration includes an extended course in measurements of heights and distances, plane, rectilinear, and curvilinear figures, surfaces and volumes.

The completion of this course, common to all students, lays the foundation for the pure and applied mathematics of the mechanical and engineering courses. Analytical geometry, descriptive geometry, and calculus are pursued in the engineering courses. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of the principles and formulas.



BOTANICAL LABORATORY.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometery, Wentworth's Trigonometry and Surveying, Wentworth's Analytical Geometry, Faunce's Descriptive Geometry, Nicholson's Calculus, Johnson's Differential Equations, Osborne's Problems, Peck's Determinants.

GEOLOGY AND BOTANY.

PROFESSOR MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other natural deposits of minerals in the State. Mineral springs, the origin of ore deposits, and the geological relations of soils are carefully studied.

There is also a course of advanced work in practical geology for post-graduate students. This subject is pursued by applicants for the degrees of master of science and mining engineer.

The junior class in civil engineering studies mineralogy through the entire session. This work consists of a thorough course in blow-pipe analysis of the ordinary minerals, and lectures upon crystallography, with instruction how to measure crystals and determine the physical constants of minerals. An effort is made to familiarize the student with all the economic ores and the rocks entering into the composition of soils.

Botany.—The students of the sophomore class begin the study of botany the first of March, and continue it through the session. Analytical work is made an important feature. This class is provided with plants from the fields, and taught how to determine their specific names. The work is sufficiently exhaustive to enable the student, after completing the course, to name

any of the ordinary weeds and grasses that he will encounter in this section.

In the junior class, in the course of chemistry and agriculture, two terms are devoted to systematic and structural botany, and to advanced laboratory work with the microscope in the preparation of specimens showing plant structure; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microscopes of the most improved patterns, and all necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students.

The third term is devoted to the study of the physiology of plants in order to understand the functions of the various organs after completion of the work in the histological laboratory.

FACILITIES FOR WORK.

Geology.—The department is equipped with models of Mount Shasta, the earthquake of 1887 in Japan, glass crystals for teaching crystallography; charts and maps of the geology of America and Europe; Colt's lantern complete, with oil, oxy-hydrogen and automatic electric lamps; a large assortment of fine lantern slides representing geological formations in this country and abroad; well equipped mineralogical laboratory for thirty students, supplied with a collection of representative minerals; and models of crystals.

Botany.—The facilities for teaching this subject are as follows: Auzoux's clastic models of seeds and flowers; a large collection of pressed plants of Alabama and other sections mounted and catalogued. There is also a laboratory for practical work in botany equipped with slate-topped tables for twenty students; dissecting and compound microscopes by Zeiss, Leitz, and Bausch & Lomb; projection microscopic apparatus; microtomes by King and Bausch & Lomb; all the necessary glass ware and smaller dissecting instruments required in a well equipped laboratory. The Zeiss compound microscope used by the professor for experiment work in connection with the station is supplied with Abbe's illuminating apparatus, slide changers, Abbe's camera lucida, polarizers, apochromatic objctives (16 mm, 8 mm, 4 mm, and homogeneous immersion), oculars (2, 3, 8, 12, 18,) and photographic eye-piece with micrometer.

This laboratory is well lighted with gas and electricity and with a good exposure for ample sunlight.

In connection with the department there is a photographic dark room and an excellent photographic outfit, consisting of cameras varying in size from 4x5 to 6½x8½ inches; Bausch & Lomb's professional photo-micro camera extending to eight feet; Zeiss's anastigmat photographic lens, 6½x8½, fitted with Bausch & Lomb's diaphragm shutter, and Zeiss's wide angle lens, 6½x8½, all mounted in aluminum; Clark's lens fitted with diaphragm shutter; Darlot lens, 4x5; the accessory apparatus and chemicals required for first class work in photography.

The students have access to the botanical garden where experiments in grass culture and many other plants of interest to the farmer are conducted by the professor.

TEXT-BOOKS.

LeConte's Geology, Williams's Practical Geology, Tarr's Economic Geology, Dana's Mineralogy, Gray's Botany, Nelson's Herbarium and Plant Descriptions, Laboratory Guide, and notes of lectures.

CIVIL ENGINEERING AND DRAWING.

PROFESSOR LANE.

ASSISTANT FEAGIN.

The special studies in this department begin in the junior class, and require a good knowledge of algebra, geometry, trigonometry, and analytical mechanics. They are as follows:

Junior Class—Simple, compound, reversed and parabolical curves, turnouts and crossings, leveling, gradients, setting slope stakes, etc.

Special attention will be paid in this class to the location, construction, drainage and maintenance of country roads; and the various pavements and foundations for the same.

Senior Class—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought iron, steel and other metals; limes, cements, mortars and their manu-

facture; paints and other preservatives; classification of stains and a general mathematical discussion of same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds, their construction and strains determined mathematically and graphically; common roads, their coverings, location and construction of railroads; navigable, irrigation and drainage canals; river and sea-coast improvements.

Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior Class.—Henck's Field Book for Railway Engineers and Byrne's Highway Construction.

Senior Class.—Wheeler's Civil Engineering and Von Ott's Graphic Statics.

DRAWING.

All of the students of the freshman and sophomore classes are required to take drawing; but only the students in civil engineering in the junior and senior classes.

The freshman class is taught linear and free-hand drawing. The sophomore class is instructed in the principles of orthographic and isometric projections, shades, shadows, perspective and tinting. In the junior class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and tinting; also sketches of tools and machines, plans and elevations and cross-sections of buildings, and blue prints. The senior class makes topographical drawings, and drawings of machines, roofs, bridges, etc., to different scales, and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Freshman Class.—Kitchener's Geometrical Note Book, Thorne's Junior Course in Mechanical Drawing, and Davidson's Model Drawing.

Sophomore Class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior Class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, Plates belonging to the College, Keuffel & Esser's Alphabet.

Senior Class.—French, English and American plates belonging to the College, Keuffel & Esser's Alphabet.

ENGLISH AND POLITICAL ECONOMY.

PROFESSOR THACH.

ACTING PROFESSOR FAULKNER,

ASSISTANT SCROGGS.

OBJECTS AND METHODS.

In this department the students pursue a systematic course in the English language and literature.

Language is the avenue of approach to all knowledge; the interpretation of words is the fundamental process in education of whatsoever kind. A full course in English is, therefore, considered especially important in the technical courses of study that do not include the ancient classics. Accordingly, the course of English is continued throughout the four years of the college curriculum, three hours a week, and is made obligatory upon all students, with the exception of those pursuing the first two years of the course in Latin. In this extended drill in the grammar and literature of the English language, the endeavor is made to afford a training somewhat equivalent to the ordinary course in the classical languages.

In view of the ill preparation in languages, especially in their mother tongue, exhibited by many of the candidates for admission to the freshman class, it is deemed advisable, for the sake of honest

work, to devote a portion of the first year to grounding such students in the principles of grammar.

Especial attention is given to the study of the writings, themselves, of leading English authors, since direct contact with literature is considered more profitable than information merely *about* literature.

All students before classed as regular in any course leading to a degree must conform to all the requirements in English for admission as set forth on page 34.

For requirements as to thesis and as to proficiency in English for certificates and degrees see pages 41 and 97.

Declamation and themes (or orations) are required of *all regular* students. For details see below.

COURSE OF STUDY.

Freshman Class.—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied; study of American authors; Irving, Hawthorne, Holmes, Poe, Bryant, Longfellow.

Swinton's English Grammar, Lockwood's Rhetoric, Kellogg & Reed's English Language.

Sophomore Class.—Three hours a week; study of style, analysis of selections of prose and poetry, frequent essays on historic and literary themes.

Carpenter's Rhetoric, Genung's Rhetorical Analysis, Syle's From Milton to Tennyson.

Junior Class.—Three hours a week; lectures on the history of English literature, critical study of English classics, essays.

Pancoast's History of English Literature; Pancoast's Standard English Poems; Macaulay, Carlyle, DeQuincey, etc.

Senior Class.—Two hours a week, first term. Principles of Criticism, Shakespeare's Julius Cæsar, Hamlet, etc., Dowden's Shakespeare, etc.

THEMES AND ORATIONS.

Theory without practice is as fruitless in the study of English as in any other department of study. Practical work is indispensable to the successful teaching of English.

Besides numerous brief papers illustrative of the spbject matter of the text-books, set themes or orations are *required of all students*:—For the freshman class, *ten* themes a year; *ten* for the sophomore; for the senior and junior classes, *three* orations each.

DECLAMATION.

The old practice of committing pieces to memory for "speaking" is cultivated as a means, both of training in the art of thinking on the

feet, and of storing the mind with the diction of finished specimens of English style.

The sophomore class is heard weekly throughout the year in sections of ten, once for an hour and a half in rehearsal, afterwards in the study-hall before the body of students.

The senior and junior classes also deliver their orations in public.

PHILOSOPHY AND POLITICAL ECONOMY.

The senior class pursues the study of intellectual science, twice a week, through the year; and political economy twice a week, during the last two terms. The instruction in this department is by lectures in combination with text-books.

Intellectual Science.—Psychology defined. Value in relation to moral culture, education, and Natural Sciences. The relation of the soul to matter. The arguments of the Materialist. Counter arguments. The Faculties of the Soul. The nature of Consciousness. Sense Perception. Fancy. Imagination. Nature of Conceptions. Language. Judgment. Reasoning. Deduction. Induction, etc. *Porter's Intellectual Science.*

Political Economy.—Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades-union; tariff; education, etc. *Lectures by Professor. Walker's Political Economy.*

A Post-graduate Course has also been established in English. The following courses have been given:

(1) *Shakespeare.*—Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV. Part I. Richard III., King John.

(2) *Dryden—Poetical Works* (Christie); *Essay of Dramatic Poesy* (Thomas Arnold); *Essay on Satire, etc.*, (Yonge); Saintsbury's *Life of Dryden.*

Pope—Poetical Works (Ward); *Satires* (Pattison); Stephen's *Life of Pope*, Gosse's *From Shakespeare to Pope* and *18th Century Literature*

3) *English Literature of the Eighteenth Century*: Addison, Pope, Gray, Goldsmith, Burns, Cowper, Burke.

(4) *American Literature:* Longfellow, Lowell, Poe.

CHEMISTRY.

PROFESSOR ROSS.

INSTRUCTOR HARE.

INSTRUCTOR HOUGHTON.

Instruction in this department embraces—

1. A course of lectures in general chemistry.

2. A course of lectures in industrial chemistry.

2. A course of lectures in agricultural chemistry.

4. Systematic laboratory-work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in general chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cooke's Chemical Philosophy, Chemical Journals.

2. Lectures on industrial chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the reduction of ores, the preparation of materials, for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.



CHEMICAL LABORATORY (INTERIOR).

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams.

REFERENCE BOOKS.

Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Percy's Metallurgy, Sadtler's Industrial Organic Chemistry.

3. Course in agricultural chemistry: This consists of lectures on chemistry in its applications to agriculture (two per week), and includes a thorough discussion of the origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist.

REFERENCE BOOKS.

Johnson's How Crops Grow and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

4. The course of systematic laboratory work: This course of practical work in the laboratory is carried on in connection with each course of lectures, and embraces the practical operations of chemical analysis and synthesis, being varied somewhat to suit the individual object of the student.

The laboratories which are open from 9 A. M. to 5 P. M., during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation, in the qualitative and quantitative analysis of soils, fertilizers, feed stuffs, sugar products, minerals, mineral waters, technical products, etc., and in the method of prosecuting chemical researches. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles, and the common re-agents and apparatus used in qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

In addition to the analytical work above described, it is designed to give during the session a short course in electro-plating. Practical instruction in the electro-deposition of nickel, silver, gold, etc., upon other metals will be given, and, in addition, the application of electrolysis to chemical analysis will be studied both theoretically and practically.

TEXT-BOOKS.

In qualitative analysis—Jones's Fresenius Plattner.

In quantitative analysis—Fresenius, Sutton, Rose, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying.

In agricultural chemical analysis—Official methods of the Association of Agricultural Chemists, Wiley's principles and Practice of Agricultural Analysis.

CHEMICAL LABORATORY.

[For description of the building see page 14.]

The chemical apparatus recently purchased for the laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, four short-arm Becker balances of latest pattern, Bunsen spectroscope, Zeiss miscroscope, and other instruments for delicate and accurate work.

HISTORY AND LATIN.

PROFESSOR PETRIE.

INSTRUCTOR PATRICK.

ASSISTANT ADAMS.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of iso-

lated facts but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Constant practice in map drawing is insisted on in order to give precision to the geographical knowledge acquired. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library.

In the freshman class, the subjects studied are the United States, Alabama, and England. The first term (two hours per week) is devoted to the history and government of the United States, the second term (two hours per week) to Alabama, and the third term (three hours per week) to the history of England.

In the sophomore class (three hours per week until March) the subject studied is general European history.

In the junior and senior classes opportunity for special historical work is given to those students of the General Course who may elect it instead of laboratory work. During the session of 1900-01 the work will be in American history, social, political and constitutional.

A series of lectures will be given on American statesmen, including amongst others such Southern men as Randolph, Davis, Stephens, Toombs and Yancey. Lectures will also be given on important points in our history, including: The Failure of the Confederation; The Ordinance of 1787; The Constitutional Convention; The War of 1812; The Missouri Compromise; The Monroe Doctrine; Texas and Mexico; The Compromise of 1850; The Kansas-Nebraska Struggle; Secession.

The students will investigate under the direction of the professor topics connected with the lectures and will record the results of their research in note books. These records will be made the basis of general class discussion.

Graduate students are expected to take part in the junior and

senior discussions and in addition will meet with the professor for conference in regard to their work. Those who take history as their major subject are expected to devote a large part of their time to original research upon some topic on which they can consult the original sources of information. They are also required to pursue a prescribed course of reading as indicated below:

TEXT-BOOKS.

Freshman Class.—Cooper, Estill & Lemmon's History of the United States. Thorpe & McCorvey's Civil Government in the United States and Alabama, Montgomery's English History.

Sophomore Class.—Myers's General History.

Junior and Senior Classes.—Moore's American Congress.

Graduate Course—Wilson's Division and Reunion, selected parts of Stephen's Constitutional History, and of Rhodes's History of the United States, Fiske's Critical Period, Lodge's Hamilton, Morse's Jefferson, Schurz's Clay, Lodge's Webster, Sumner's Andrew Jackson.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

For the benefit of students who do not study the Latin language a series of popular lectures will be given upon the great Latin writers. Especial emphasis is laid on proficiency in writing Latin exercises and in translating Latin prose at sight.

TEXT-BOOKS.

Freshman Class.—Allen & Greenough's Grammar, Exercises, Nepos.

Sophomore Class.—Cicero, Allen & Greenough's Grammar, Exercises.

Junior Class—Virgil,Horace, Allen & Grenough's Grammar, Exercises, Allen's History of Rome, Wilkins's Roman Antiquities.

Senior Class.—Livy, Tacitus, Wilkins's Latin Literature, Exercises.

MODERN LANGUAGES.

ACTING PROFESSOR FAULKNER.

The following regular courses are given in French and German:

French—First Year: Three recitations a week. During this year the principal object is to acquire a knowledge of the elements of grammar and a correct pronunciation, together with a facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year almost the same line of work is pursued as that begun in the previous year. More difficult and varied French is read, and instruction is given upon the laws of grammar, the construction of the language, and the history of the literature. Special attention is given to sight translation.

German—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

TEXT-BOOKS.

FRENCH—*First Year*:French Principia, Pts. I & II; Jules Verne's Michel Strogoff, Rogers's Sight Reading in French.

Second Year: Feuillet's Le Roman d'un Jeune Homme Pauvre, Dumas' La Tulipe Noire; French Composition.

GERMAN—*First Year:* Harris's German Lessons; Super's Elementary German Reader, Zschokke's Der Zerbrochene Krug.

Second Year: Schiller's Ballad's, Hauff's Das Kalte Herz; Bernhardt's German Composition.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.

INSTRUCTOR KYSER.

ASSISTANT MCDONNELL.

JUNIOR YEAR.

The students in this course will study English, French or German, Physics, Mathematics, etc., as now prescribed for the course of Civil Engineering in the junior and senior years and in addition thereto will prosecute their studies in electricity and mechanics as herein prescribed.

First Term: Four hours per week are devoted to the study of the principles of electricity and magnetism, with especial reference to their industrial applications. The subject of electrical measurements is also treated in detail.

Second Term: Incandescent lightning, four hours per week.

Third Term: Arc lighting and wiring four hours per week.

TEXT-BOOKS.

Ayrton's Practical Electricity. Houston and Kennelly's Incandescent and Arc Lighting. Cushing's Standard Wiring.

LABORATORY WORK.—Four hours per week are given to work in the laboratory. This includes management of batteries, construction of instruments, electro-plating, electrical measurements, verification of the principles upon which the measurements of current, electromotive force and resistance are based, etc.

SENIOR YEAR.

First Term: Dynamo electric machinery, five hours per week.



ELECTRICAL BUILDING.

Second Term: Alternating currents and alternating current machinery.

Third Term: Polyphase machinery and power transmission, five hours per week.

TEXT-BOOKS.

Dynamo Electric Machinery, Thompson. Alternating Currents, Franklin and Williamson. Standard Polyphase Apparatus, Oudin.

LABORATORY WORK.—Six hours per week are devoted to practical laboratory work, electrical measurements, relation of electrical currents to heat and mechanical work, care and tests of dynamo and motors, calibration of voltmeters, ammeters and watt-meters, electric lighting, management and care of accumulators, energy consumed in lamps, adjustment and care of arc lamps, proper wiring of buildings, the application of electricity to street railways, magnetic measurements, tests of transformers and alternating motors, etc.

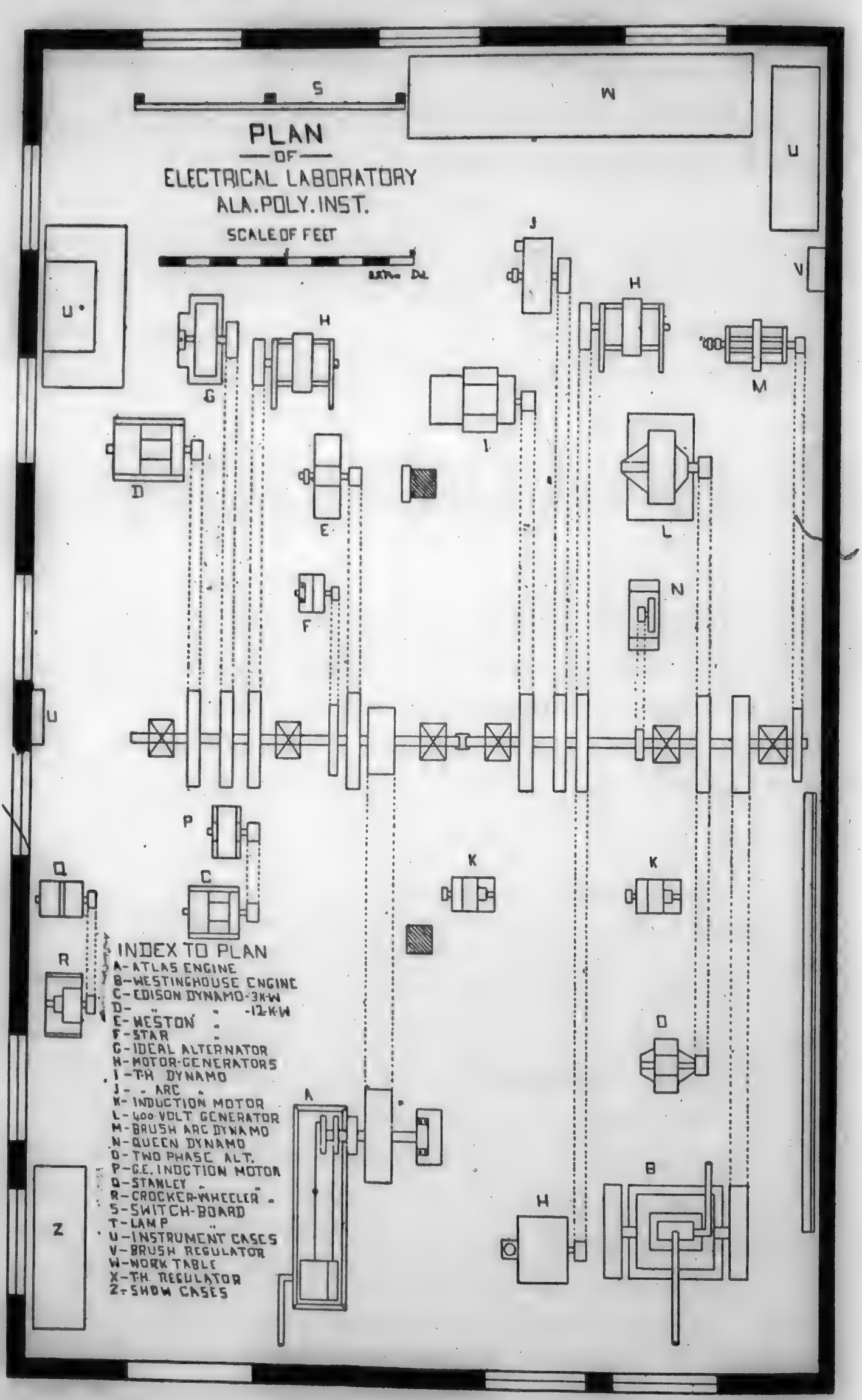
DRAWING AND CONSTRUCTION.—Two hours per week in the senior year are devoted to the design and construction of electrical machinery.

Encouragement is offered to advanced students for conducting original investigations, and opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students in connection with their experimental work.

In addition to the usual laboratory work senior students spend a portion of their time in the boiler room, learning the management and care of the steam plant, and in turn take charge of the lighting plant, thus becoming familiar with running the engines and dynamos.

POST GRADUATE COURSE.—To graduate students more advanced courses in the theory and applications of alternating currents and alternating current machinery are given. The courses will be varied slightly from year to year to suit the needs of those taking the course.

In connection with this work suitable laboratory work will be given.


PLAN
OF
ELECTRICAL LABORATORY
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INDEX TO PLAN
A-ATLAS ENGINE
B-WESTINGHOUSE ENGINE
C-EDISON DYNAMO-3K-W
D- " " -12-K-W
E-WESTON "
F-STAR "
G-IDEAL ALTERNATOR
H-MOTOR-GENERATORS
I-T-H DYNAMO
J- " ARC "
K-INDUCTION MOTOR
L-400 VOLT GENERATOR
M-BRUSH ARC DYNAMO
N-QUEEN DYNAMO
O-TWO PHASE ALT.
P-G.E. INDUCTION MOTOR
Q-STANLEY " "
R-CROCKER-WHEELER "
S-SWITCH-BOARD
T-LAMP "
U-INSTRUMENT CASES
V-BRUSH REGULATOR
W-WORK TABLE
X-T-H. REGULATOR
Z-SHOW CASES

EQUIPMENT.

The electrical laboratory has a complete line of batteries, call-bells, annunciators, telegraph sounders, relays, keys, magnets; galvanometers, resistance boxes, electro-plating apparatus, and all apparatus for students in electrical engineering. The equipment comprises many fine instruments of precision: Lord Kelvin's standard 100 ampere balance (either for direct or alternating currents); Lord Kelvin's graded current galvanometer, reading 600 amperes; also, his graded potential galvanometer, reading 600 volts; Weston alternating current voltmeter, Weston direct reading watt-meter, Queen's "Acme" testing set, Kelvin electro-static voltmeter, Cardew voltmeter (for direct or alternating currents), reading to 150 volts; Weston's standard ammeter and voltmeter, box of resisting coils; Queen's magnetic vane voltmeter, and ammeter, standard micro-farad condenser and Sabine key; Thompson's watt-meter, ballistic reflecting galvanometer, mirror galvanometer, Fein ammeter and voltmeter, Ayrton & Perry ammeter, Thomson inclined coil ammeter, Edison ammeters, Kohl's solenoid ammeter, Wood ammeter, Deprez ammeter Hartman & Braun voltmeter, D'Arsonval galvanometer, Rowland-D'Arsonval galvanometer, cable testing apparatus, Hughe's induction balance, tasimeter, microphone, telephones, electrolytic apparatus and several mirror and other galvanometers for first year students.

In the dynamo room the following are installed: One Weston 150 volt, 20 ampere dynamo, with rheostat; one Brush 6 arc light dynamo, with regulator and six lamps; one Ideal 5 kilo-watt three phase alternator; one Thompson-Houston 9 arc light dynamo with lamps; one Edison compound wound 12 kilo-watt generator; a Thomson-Houston 110 volt, 75 ampere generator; two street car motors used as either direct or alternating current generators or motors; two polyphase induction motors; one General Electric 5 horse-power induction motor mounted on cradle dynamometer; General Electric 20 horse-power motor; one Stanley induction motor with condensers; Edison 3½ kilo-watt generator; a Crocker-Wheeler one horse-power motor and rheostat, and one bi-phase alternator, and 500 volt generator, made by special students, furnish current to laboratory, and light up the different buildings. A lamp board with a capacity of 210 lamps has been installed and is used for testing purposes.

The dynamos occupy a separate brick building, 50x32 feet, and are operated by a 35-horse power Westinghouse vertical engine, and a 25 horse-power Atlas engine.

This department, being provided with Lord Kelvin's standard electrical instruments for exact measurements, will calibrate, free of expense, and ammeter or voltmeter that may be sent to the College.

An electric motor made by students, supplied with current from

a generator at a distance of 3,000 feet, operates a gin, gin press, ensilage cutter and fed cutter at the experiment station farm. This motor not only subserves a useful purpose in the operation of these machines, but is an excellent illustration of the electric transmission of power.

MECHANICAL ENGINEERING AND MECHANIC ARTS.

PROFESSOR WILMORE.

ASSISTANT PROFESSOR CRENSHAW.

INSTRUCTOR TRAMMELL.

INSTRUCTOR FULLAN.

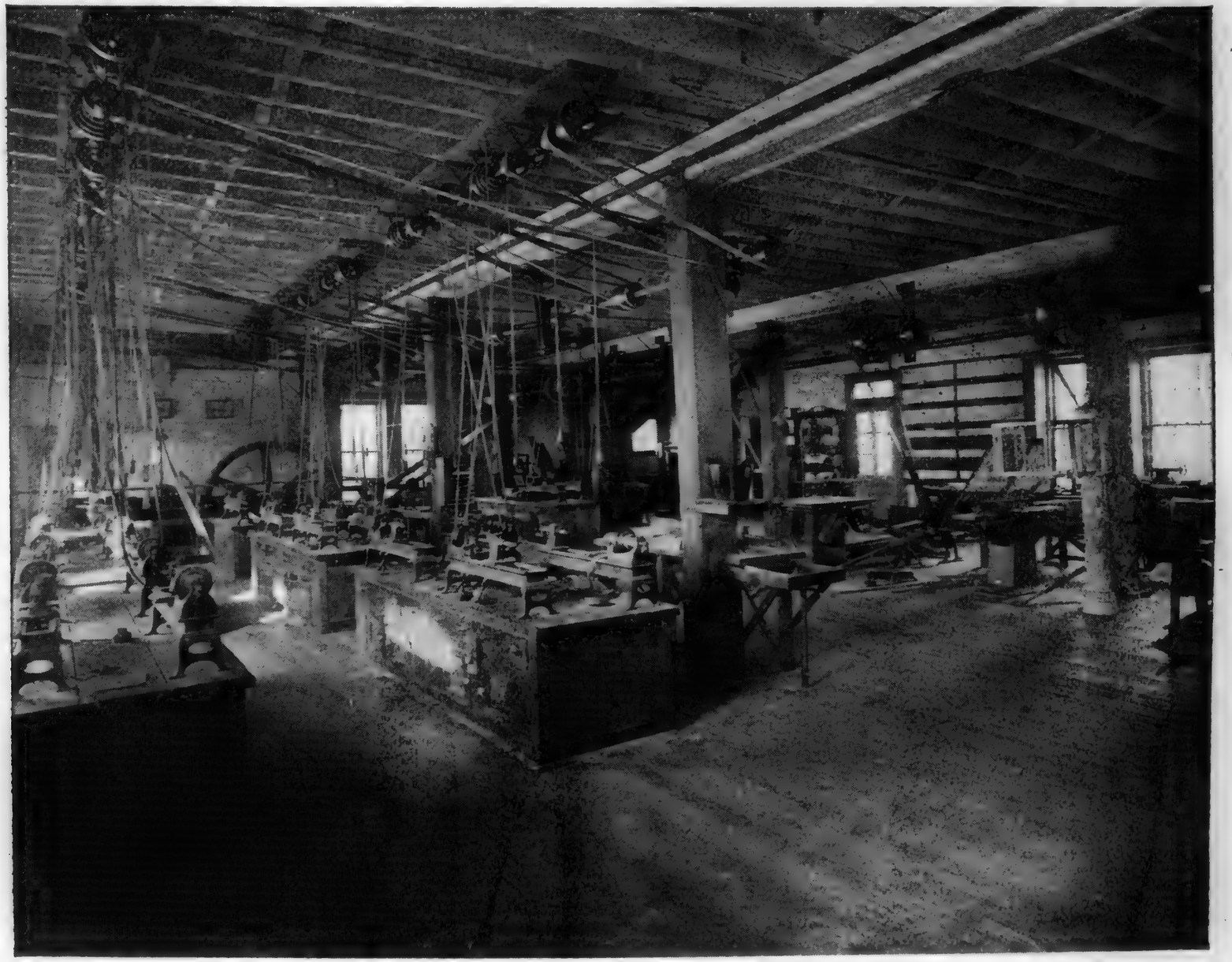
The course in manual training covers three years, as follows: first year, wood-working—carpentry and turning; second year, pattern making and foundry and forge work—molding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the two lower classes. For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

The power for running the apparatus in this department is derived from a twenty-five horse-power Harris-Corliss automatic engine which is supplied with steam by a thirty horse-power steel horizontal tubular boiler. A steam pump and a heater for the feed water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected.

The equipment for the wood-working shop comprises the following: 30 wood-working benches, each with complete set of carpenter's tools; 24 turning-lathes, 10-inch swing, each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 jointer; 1 pattern-maker's lathe, 16-inch swing; 1 36-inch grindstone. The tool room is supplied with a variety of extra hand-tools for special work, and in addition to the regular carpenter's tools in the benches, each student is supplied with a set of chisels and



WOOD ROOM.

plane irons with a locker to keep them in and is held responsible for their care and condition.

The equipment for the foundry consists of molding benches for 18 students, each supplied with a complete set of molder's tools; a 23-inch Colliau cupola, with all modern improvements, capable of melting 2,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full suppy of ladles, large and small moulding flasks, a foundry crane, special tools, etc.

The forge shop equipment consists of 16 hand forges of new pattern, each with a set of smith's tools, anvil, etc. The blast for all the forges is supplied by a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a No. 15 Sturtevant exhaust blower draws the smoke from the fires into the smoke-flues and forces it out through the chimney.

The machine department occupies a brick building, 30x50 feet, and is equipped with eight engine-lathes, (screw-cutting, 14-inch swing, 6-foot bed; 2 engine lathes 16-inch swing, (one with taper attachment); 1 engine lathe, 18-inch swing, with compound rest and taper attachment); 1 speed lathe, 10-inch swing; 1 20-inch drill press (power feed); 1 10-inch sensitive drill; 1 15-inch shaper; 1 22-inch x 22-inch x 5 feet planer; 1 universal milling machine; 1 corundum tool grinder, (14-inch wheel); 1 bench grinder; 1 post drill press, 14-inch universal cutter and reamer grinder; 1 Brown and Sharpe universal grinding machine; 1 power hack saw. A part of the room is set apart for vise-work, chipping and filing; and benches for 12 students are provided, each with vise and set of files, chisels, hammers, etc. In the tool-room is to be found a good supply of machinists' tools for general shop use, such as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, with machine for grinding twist drills.

The nature of the work in each department is as follows:

FIRST YEAR.

I. A course of carpentry or hand work covering the first two terms. The lessons include instruction in the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the third term. The lessons comprise, nature and use of lathe and tools, plain

straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plate and check work, hollow and spherical turning.

SECOND YEAR.

I. Course in forge work in iron and steel, occupying the first term. The lessons are arranged so that the students in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

II. A course in pattern-making covering the second term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general molding.

III. A course in molding and casting in iron and brass occupying the third term. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks; core work is also given, and some three part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola.

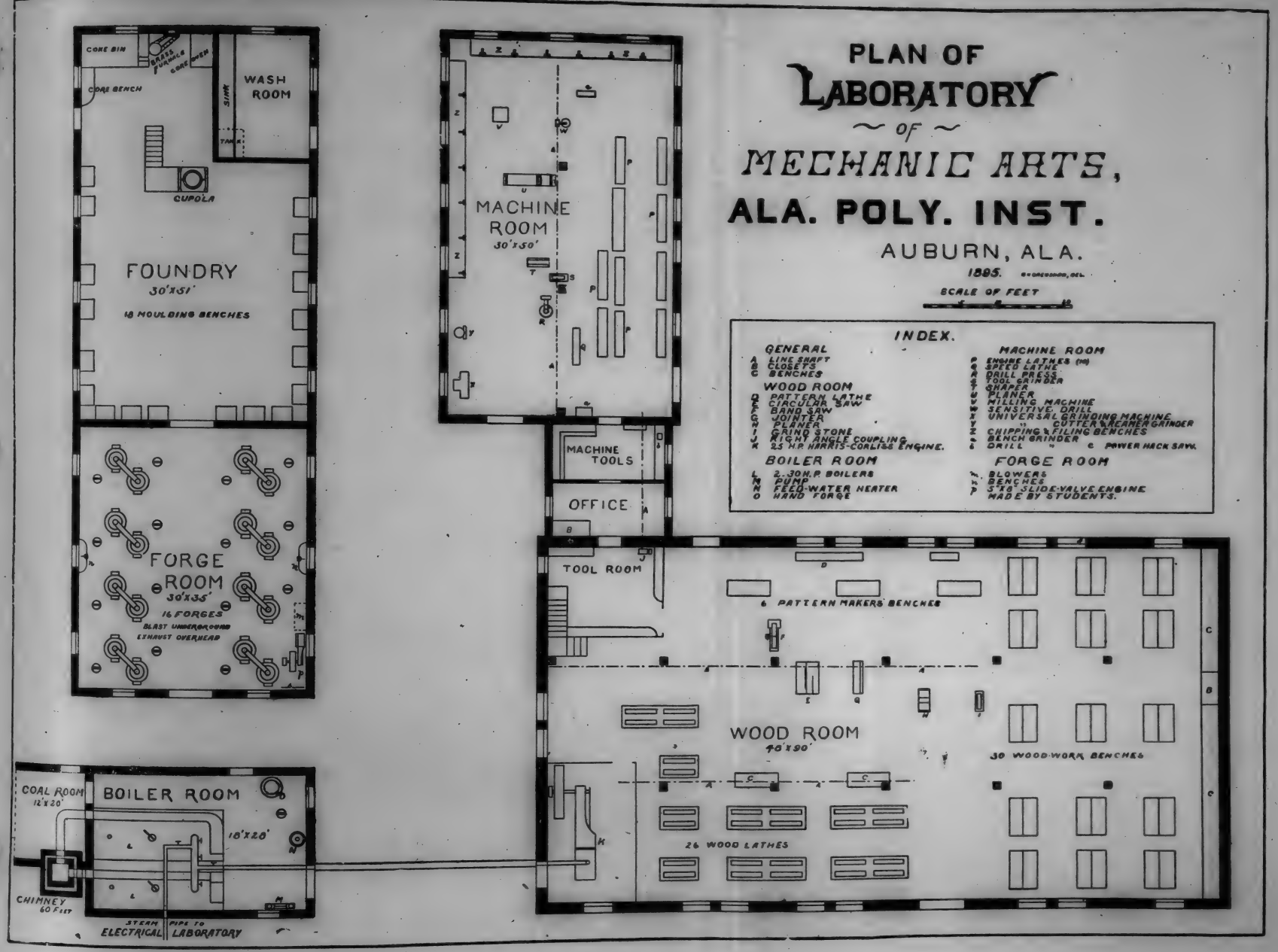
In connection with this second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

THIRD YEAR.

I. A course of chipping and filing, covering the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved surfaces, key-seating, etc., filing and finishing to line (straight and curved), surface filing and finishing, fitting, slotting, dovetail work, sawing, pin and screw filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron, steel and brass; turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press,—reaming, boring, screw-cutting in lathe and with taps and dies, planing, slotting, etc., with planer and shaper, milling various forms with the milling machine, including exercises in making taps, reamers, etc., fitting, grinding, polishing, etc.


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PLAN OF
LABORATORY
~ OF ~
MECHANIC ARTS,
ALA. POLY. INST.
AUBURN, ALA.
1895.
SCALE OF FEET
INDEX.
GENERAL
A LINE SHAFT
B CLOSETS
C BENCHES
WOOD ROOM
D PATTERN LATHE
E CIRCULAR SAW
F BAND SAW
G JOINTER
H PLANER
I GRIND STONE
J RIGHT ANGLE COUPLING
K 25 H.P. HARRIS-CORLISS ENGINE.
BOILER ROOM
L 2-30 H.P. BOILERS
M PUMP
N FEED-WATER HEATER
O HAND FORGE
MACHINE ROOM
P ENGINE LATHES (10)
Q SPEED LATHE
R DRILL PRESS
S TOOL GRINDER
T SHAPER
U PLANER
V MILLING MACHINE
W SENSITIVE DRILL
X UNIVERSAL GRINDING MACHINE.
Y " CUTTER & REAMER GRINDER
Z CHIPPING & FILING BENCHES
a BENCH GRINDER
b DRILL " c POWER HACK SAW.
FORGE ROOM
BLOWERS
BENCHES
3"x9" SLIDE-VALVE ENGINE
MADE BY STUDENTS.
CORE BIN
BRASS MOULDS
CORE OVEN
CORE BENCH
SINK
WASH ROOM
TANK
CUPOLA
FOUNDRY
30'x51'
18 MOULDING BENCHES
FORGE ROOM
30'x35'
16 FORGES
BLAST UNDERGROUND
EXHAUST OVERHEAD
MACHINE ROOM
30'x50'
MACHINE TOOLS
OFFICE
TOOL ROOM
6 PATTERN MAKERS' BENCHES
WOOD ROOM
40'x90'
30 WOOD-WORK BENCHES
26 WOOD LATHES
COAL ROOM
12'x20'
BOILER ROOM
16'x20'
CHIMNEY
60 FEET
STEAM
ELECTRICAL
PIPE TO
LABORATORY

m

Lectures are also given during the year on various subjects connected with machine work in metals; such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

All of the work is done from blue prints made by the class in drawing. In the construction work, the student is given a blue print and the material for a certain part. He is then encouraged to study the work and plan the best method of doing it.

MECHANICAL ENGINEERING.

JUNIOR YEAR.

Elementary Mechanics.—Three hours a week for the first term are devoted to this subject. The fundamental laws underlying all mechanical science and the mechanics of liquids, gases and vapors are studied.

Principles of Mechanism.—Three recitations per week during the second and third terms are devoted to this subject.

Under this head machines are analyzed and their elementary combinations of mechanism studied. The communication of motion by gear wheels, belts, cams, screws and link-work, the different ways of obtaining definite velocity ratios and definite changes of velocity, parallel motions and quick return motions as well as the designing of trains of mechanism for various purposes, together with the theoretical forms of teeth for gear wheels to transmit the motion through these trains, are investigated under this subject.

Mechanical Drawing.—During the first term the students make drawings to exact scale, of some of the simpler machines. The student takes his own measurements and makes his own sketches from which to make the finished drawing.

An elementary course of machine design is started at the beginning of the second term and continued till the end of the year. Some comparatively simple machine is selected and studied in all its details. Careful attention is given to the strength of the parts and their mechanical arrangement with reference to facility of manufacture. An actual machine or the working drawings of a machine are obtained, the dimensions compared with those obtained by applying the theoretical formulas, and the causes of variation between the two studied.

Laboratory Work.—The laboratory work will consist of hand work in iron and machine work in iron, as given in the course in mechanic arts in the third year.

TEXT-BOOKS.

Wood's Elementary Mechanics; Stahl and Wood's Elementary Mechanism.

SENIOR YEAR.

Mechanical Engineering of Power Plants.—The first term five hours per week is given to the study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparations a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages and disadvantages of each discussed. Extensive files of manufacturer's catalogues are kept and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work.

Steam Engine.—The second term five hours per week will be given to the study of the theory and efficiency of the steam engine, with discussions of the effects of condensation in cylinder, action of fly wheels, effects of jacketing, etc. Simple and compound engines, various valves and cut-off motions, and the principal types of modern engines are studied. Special attention is given to the steam engine indicator.

Graphical Statics of Mechanism.—Six weeks of the third term, five hours per week, will be given to the study of this subject. The advantage of graphical over analytical methods is general recognized, and new applications of the former are constantly being made. By its use, the forces acting in every part of a machine may be determined, both in direction and intensity, without the use of a mathematical formula.

During the remainder of the third term, a series of lectures on mechanical refrigeration and gas engines is given.

Machine Design.—The subject of machine design is made a continuation of the junior course and runs

throughout the year, two hours a week. During the first term, the strength and proportions of different joints and fastenings are studied, and problems given for actual solution. During the remainder of the year the time is spent on steam engine design. The results as obtained from standard formulas are compared with the dimensions as used by the best constructors, and the reasons for variations, if any occur, are studied.

Laboratory Work.—The students are not only taught how to calibrate and use the different instruments, but they are brought in contract with engineering appliances under practical working conditions.

Thoroughness of work is sought rather than the performance of a large number of experiments.

The following course has been arranged:

Calibration of steam gauge; calibration of indicator spring; calibration of thermometer; calibration of scales and balances; calorimeter tests with barrel separating and throttling calorimeters; boiler test with determination of the quality of steam and analysis of flue gas; efficiency test of engine with brake and indicator power measurement; test of hot air pumping engine; efficiency and duty of a steam pump; tensional, compressional and transverse tests of cast iron, wrought iron, steel and wood, in which are observed the limit of elasticity, the ultimate breaking strength and the modulus of elasticity.

This class usually makes a test of some electric plant or mill some time in the last term.

The apparatus for carrying on this work consists of 45 horse-power Imperial cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Deane air pump and circulating pump, of a 25 horse-power Harris-Corliss engine, a 35 horse-power Westinghouse engine, a 25 horse-power Atlas engine, two 9 horse-power engines, constructed by students in the shops, a small engine and boiler especially for making efficiency tests, a duplex Deane steam pump, an Ericsson hot air engine, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, pyrometers, scales, a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester for correcting the standad gauge, a 35,000-pound testing machine, and Henning micrometer extensometer, a Carpenter calorimeter with auxiliary apparatus for determining the heating value of different fuels, a draft gauge, and a Henning pocket recorder.

TEXT-BOOKS.

Hutton's Mechanical Engineering of Power Plants, Holmes's Steam Engine, Herrman-Smith's Graphical Statics of Mechanism; Unwin's Machine Design.

REFERENCE BOOKS.

The Library contains a number of standard works on the various subjects studied, and the students are referred to them constantly for more extended treatment of many points that come up in class.

POST-GRADUATE COURSE.

The following course has been aranged and represents the amount of work required. Hydraulics may be substituted for thermodynamics if the members of the class are unanimous in wishing the change. Other substitutions may be made at the option of the professor, provided they represent an equivalent amount of work, and are in the general line of the course selected.

Dynamometers.—This includes dynamometers and the measurement of power. Absorption and transmission dynamometers are studied, with their application and use in testing steam engines.

Valve Gears.—The different forms of valve gears of steam engines are studied, and problems in designing gears are worked out.

Thermodynamics of the Steam Engine.—This subject is studied theoretically and practically, and attempts a complete analysis of the action of steam in an engine.

Laboratory Work.—As much advanced laboratory work will be given as can be arranged with the appliances at hand.

TEXT-BOOKS.

Flather's Dynamometers and Measurement of Power, Spangler's Valve Gears, Peabody's Thermodynamics of the Steam Engine, Merriman's Hydraulics.

AGRICULTURE.

PROFESSOR DUGGAR.

Instruction in agriculture is given by means of lectures, text-books, bulletins of the agricultural experiment stations, and practical work in field, barn, and dairy.

The study of agriculture begins with the freshman class in the third term, and extends through three terms

of the sophomore year and two terms of the junior year. The time devoted to this study in the lecture room is two hours per week with each class.

The subjects studied by the freshman class are the breeds of horses, cattle, sheep and hogs,—their characteristics, uses, management and adaptability to the South. Practical work in judging live-stock is included in the course. Five breeds of cattle and two of hogs are represented in the herd maintained by this department.

The first term of the sophomore year is devoted to dairying and to a study of the principles of live-stock breeding. Dairying will be taught by practical work in the dairy,—butter making, determination of fat in milk by the Babcock method, etc.,—as well as by instruction in the lecture room.

In the second term of the sophomore year the following subjects are studied: soils—chemical and physical properties, defects, and means of improvement; the control of water, including means of conserving moisture in times of drought, terracing, underdrainage, and open and hillside ditches; objects and methods of cultivation; agricultural implements; rotation of crops; and improvement of plants by crossing, selection, and culture.

The third term of the sophomore year is devoted to the staple crops produced in Alabama, to forage plants adapted to the South, and to plants valuable for the renovation of soils. The more important crops are treated with reference to varieties, soil and fertilizer requirements, methods of planting and cultivating, and uses.

In the junior year the subjects of feeding animals and of farm management are studied. Among the topics included under the latter heading are different systems of farming and stock growing, farm equipment and buildings, silos and silage, care of farm manures, compost-

ing, choice and methods of applying commercial fertilizers for different crops and soils, and economical methods of improving exhausted soils.

In every class the student is encouraged to independent thought on agricultural problems rather than to depend on "rules of thumb," so that he may be prepared to adapt his practice in after years to changed conditions of soil, climate, capital, market, etc. The successful farmer must be a thinker rather than a blind follower of inflexible rules.

The effort is made to keep before the student the difference between the widely applicable principles on which every rational system of farming rests and the details that vary with changing conditions. The conditions of soil, climate, etc., prevailing in different parts of Alabama are kept constantly in view.

As far as limited time allows, attention is directed to agricultural literature now accumulating so rapidly in this and in foreign countries, to the end that in future years the student may know where and how to seek the information that he may need.

Applicants for post-graduate work in agriculture will be assigned special research work and aided in the line of investigation deemed best for each individual student.

REFERENCE BOOKS.

Horses, Cattle, Sheep, and Swine, by Curtis; The Study of Breeds, by Shaw; Milk and its Products, by Wing; Dairyman's Manual, by Stewart; Soils and Crops of the Farm, by Morrow & Hunt; The Fertility of the Soil, by Roberts; Corn Culture, by Plumb; The Soil, by King; Manures and the Principles of Manuring, by Aikman; Drainage for Profit and Health, by Waring; Agriculture in some of its Relations with Chemistry, by Storer; Manual of Cattle Feeding, by Armsby; Feeds and Feeding, by Henry; Stock Breeding, by Miles; Hand-Book of Experiment Station Work; and selected publications of the various divisions of the U. S. Department of Agriculture and of the agricultural experiment stations.

BIOLOGY AND HORTICULTURE.

PROFESSOR EARLE.

The subject of biology is required of the senior class in the courses of chemistry and agriculture, and of pharmacy. It occupies five hours a week for three terms of the senior year. The work in this department will be



LABORATORY OF BIOLOGY.

largely confined to the study of the lower forms of plant life and to vegetable physiology, or the study of plants as living beings. Under the first head special attention will be given to the bacteria and other diseases producing organisms of man and the higher animals; and to the parasitic fungi that cause diseases of plants. Under vegetable physiology those problems that explain the foundation for correct agricultural practices will be made most prominent. This will include the germination of seeds, the food and nutrition of plants, the circulation of the sap, the processes of reproduction, plant variability, etc.

The instruction will be by text-book, supplemented by lectures and by practical laboratory work.

The students will be required to make careful microscopic drawings of objects studied. They will also collect material in the fields and determine it so far as their instruction will admit.

The equipment for instruction in this department comprises besides a sufficient lecture room, a students' laboratory and two small glass rooms for cultural and bacteriological work. These are supplied with water, gas and all necessary appliances for thorough primary and advanced work, including compound and dissecting microscopes for each student, microtomes, paraffine baths, incubators, steam and dry sterilizers, instantaneous water heaters, Pasteur filter, chemical and common balances, set of Brendel's models of parasitic and other fungi, besides a large and well selected stock of glassware staining fluids, chemical re-agents, culture, media, etc.

In the private office of the department, which is fitted up as a special laboratory for the use of the professor in charge, is located a good reference library and the scientific collections of the department. At present these consist of about 17,000 named specimens of fungi, and of the other groups of cryptogams. These books and collections are accessible to the students, and constitute, with the other resources mentioned, a superior equipment for advanced biological instruction.

HORTICULTURE.

At present special horticultural instruction is confined to the spring term of the junior year in the course of chemistry and agriculture, and to some practical work and "field lectures" to the students of the same course

during the sophomore year. Instruction is given by lectures and text-book and by courses of reading, using the green house and orchards and gardens of the experiment station to give practical illustrations of the subjects taught.

Attention is called to the various fruits and vegetables that can be successfully cultivated in Alabama, and methods of propagation, cultivation and marketing are discussed. Particular attention is called to the diseases and insect enemies to which each of these crops are liable, and careful directions are given as to the best known means of combating them. The construction and management of green houses, hot beds and cold frames receives special attention, while such topics as floriculture, landscape gardening and forestry are discussed in a general way only.

Special work will be arranged for any student desiring to take a more extended course in horticulture.

MILITARY SCIENCE AND TACTICS.

COL. B. S. PATRICK, COMMANDANT.

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company and of the battalion in close and extended order, also in guard mountings, inspections, dress parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the College is provided with modern cadet rifles and accoutrements. Ammunition for practice firing is used under the direction of an experienced officer. The exercises in target practice begin the first day of the third term.

The following uniform of standard cadet gray cloth has been prescribed for dress: Coat and pants as worn at West Point, with sack coat for fatigue, dark blue cadet cap. A neat and serviceable uniform can be obtained here at $14 to $15. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.



CORPS OF CADETS.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct and scholarship. The commissioned officers will be selected either from the senior or junior classes, and promotion will depend on merit and not wholly on seniority.

A band, composed of cadets, furnishes appropriate music at all reviews and parades, and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the President and Commandant. The resignation of his office by a minor will usually not be considered without first placing all the circumstances of the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

No cadet can continue an officer in the corps who during a session is classed in the fourth grade in two of more subjects at any term examination, or in the fourth grade in any subject at two term examinations; nor who receives during the session more than 60 demerits.

Examinations will be conducted by a board of officers, to be composed of the Commandant of Cadets and two commissioned officers, to be designated by him. The proceedings of the board are subject to revision and approval by the President of the College.

Each company is officered by one captain, two first lieutenants, one second lieutenant, and with a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The junior class recites once a week in the United States Infantry Drill Regulations.

The senior class recites once a week in Wagner's Elements of Military Science, and Manual of Guard Duty, U. S. Army.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. Army, and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

PHYSIOLOGY AND VETERINARY SCIENCE.

PROFESSOR CARY.

PHYSIOLOGY.

The sophomore class studies human anatomy, physiology and hygiene during the entire college year.

It is the aim of the department to give the students practical and real knowledge of the gross anatomy and functions of the various parts of the human body. Due attention is given, also, to the laws of health—the conditions most favorable to a continuous healthy action of the organs of the human body.

Instruction is given by lectures and by text-books, supplemented by black-board drawings, charts, models of organs, a human skeleton, and by dissections of some of the smaller animals (dog, cat, etc.).

Martin's Human Body is used as a text and reference book, and several other works on anatomy, physiology and hygiene may be consulted in the college library.

VETERINARY SCIENCE AND ART.

Students in the agricultural and chemical course of study, during the entire junior and senior years, devote to this work two hours per week in the class room and three hours per week at practical clinics. Instruction in veterinary science and art is given by lectures.

The lectures are arranged with special reference to the students who are interested in horses or other domestic animals; also to those students who contemplate studying human or veterinary medicine. While it is not the aim to give a complete course in veterinary medicine, we attempt to present the general principles of comparative medicine with such special applications as are adapted to the conditions and wants of the students.



Special attention is given to the exterior anatomy of the horse, while comparative anatomy is presented mainly in connection with the study of the diseases of the different apparatus of the horse or other domestic animals.

Lameness in the horse, minor surgery, the actions and uses of the most common medicines, the principles and practice of comparative medicine, and the ways of protecting the health of domestic animals, are considered in as plain and practical a manner as the time allotted to each subject will permit. Post mortem examinations and the dissection of domestic animals are used as object lessons in the study of general pathology and anatomy.

The senior class in pharmacy devotes three hours per week, during the first and second terms, to the study of therapeutics; and four hours per week during the third term to class room and laboratory work in bacteriology.

To the post-graduate student this department furnishes work in history, pathology, bacteriology, meat and milk inspection. This work gives students who contemplate studying medicine excellent preparatory work along that line. Such students may devote their entire time to work in this department with the approval of the faculty.

Histology includes methods of injecting small animals, collecting, fixing, hardening, embedding, section cutting, mounting, staining, examining under the microscope, drawing and describing the different tissues.

Pathology is studied in text and reference books, and morbid histology embraces naked eye and microscopic examinations of diseased tissues in the laboratory. Quite a collection of diseased tissues and animal parasites are found in connection with the laboratory.

The laboratory is well fitted for the study of bacteriology. Bacteriological analyses of water, milk, sputum, pus, diseased tissues, and of soils can be made. All of the practical operations in the preparation of culture, media, sterilizations, inoculations of small animals, staining, microscopical examinations may be learned. In the laboratory, are 3 Bausch and Lomb and 2 Winkel microscopes, each of which is supplied with oil immersion objectives, 2 oculars, Abbe condenser, and iris diaphragm. Sterilizers, autoclaves, incubators, and all the necessary apparatus required in bacteriological work are to be found in the laboratory.

The department of physiology and veterinary science is now located by itself in a building which consists of a two-story portion, containing four laboratory rooms on the second floor and a lecture room, museum and office on the lower floor; and a one-story part, which contains an operating room.

The building is supplied with water and gas, and the laboratory is now equipped for work. The museum contains the skeletons of the horse, the ox, the sheep, and the hog, and a human skeleton. It also contains anatomical models of the various parts and organs of the human body and models of many parts of the horse, the ox, and the other domestic animals. It also contains a collection of pathological and anatomical specimens, and one of animal parasites.

The new veterinary hospital building contains five large box stalls, four open single stalls, an office and a feed room, on the lower floor; the upper floor is used as a storage room for hay, fodder, etc. The hospital is supplied with fresh water.

Every Saturday during the college year, the department conducts a free clinic for the benefit of the students in veterinary science and art. Clinical cases have been various and numerous, giving the students opportunity to see and study many diseases and lamenesses and to become proficient in minor operations.



LABORATORY OF PHARMACY.

PHARMACY AND PHARMACOGNOSY.

PROFESSOR MILLER.

JUNIOR YEAR.

Pharmacy.—Class work, *three hours* a week. The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in pharmacy. Apparatus used in pharmaceutical processes. Discussion of all classes of pharmaceutical preparations.

Laboratory, *nine hours* a week. Preparation of official and non-official galenicals.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. All official vegetable drugs studied with aid of simple and compound microscope.

SENIOR YEAR.

Pharmacy.—Class work, *four hours* a week. Official and non-official pharmaceutical chemicals, inorganic and organic, including the more important newer remedies. The prescription. Incompatibilities. Doses.

Laboratory, *nine hours* a week. Preparation of official and non-official pharmaceutical chemicals, inorganic and organic. Pharmaceutical testing by pharmacopœial methods. Drug assaying, special attention given to compounding of prescriptions.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. Study of important non-official vegetable drugs; of drugs of animal origin; of adulterants and worthless drugs. Practical exercises in identification of pharmaceutical preparations and chemicals.

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than three hundred drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

MISCELLANEOUS.

GYMNASIUM AND ATHLETIC FIELD.

The gymnasium is situated at the west end of the athletic and drill grounds, and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures.

It is equipped with Spalding's gymnasium apparatus and is open to all students at stated hours, under the care of an officer.

The athletic field has a quarter-mile cinder track and ample space for football, baseball, and general athletics.

DISCIPLINE.

The government of the College is administered by the President and Faculty, in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study and punctuality in attendance on recitations and all other duties, are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using, or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainment, or game, without previously obtaining the consent of the Faculty.

No cadet will be permitted, without the approval of his parent or guardian, to take part in a public game of foot-ball; nor will permission be given for any athletic game, to a student deficient in his studies.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This Association is regularly organized and has a well furnished room on the first floor of the main building set apart for its exclusive use. Through its weekly meetings it exerts a wholesome Christian influence among the students.

Students are advised to unite with the Association when they enter the Institute.

The ladies of the different churches in Auburn have recently formed an auxiliary association to the Y. M. C. A. of this Institute. Assisted by members of the Faculty, they will hold monthly a joint service of praise in the College chapel and will provide lecturers for the occasion.

They have also undertaken to build a special hall for the use of the Association, and will solicit subscriptions for that purpose.

The following are the officers:

M. A. BEESON, President.
H. Y. HALL, Vice-President.
W. S. RUTLEDGE, Treasurer.
W. F. OSBURN, Corresponding Secretary.
J. R. RUTLAND, Recording Secretary.
A. F. JACKSON, Librarian.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide water. By statute of the State, the sale of spirituous liquors and keeping saloons of any kind are forbidden.

BOARDING.

The Institute has no barracks or dormitories, and the students board with families in the town of Auburn, and thus enjoy all the protecting and beneficial influence of the family circle.

REGULATIONS.

(1) Each student upon entering is required to sign his name in the matriculation book, and pledge himself to obey the rules and regulations of the College.

(2) Every absence from recitation or examination is graded zero.

(3) When the term grade of a cadet is lowered by reason of absence for which a satisfactory excuse can be rendered, a special term re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(4) Only sickness, as reported by the Surgeon, or being absent by reason of family sickness, will constitute a satisfactory excuse for granting a re-examination.

When a cadet is called away from College by his parents his zeros for absences are not removed.

(5) The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

(6) Privates of the senior class in full standing who are candidates for graduation may be excused by the President from all military drills, and also students over twenty-one years of age at the time of entering College that are permitted to devote their time to one special study, as chemistry, agriculture or pharmacy, provided the time devoted to drill is spent by them in laboratory work.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

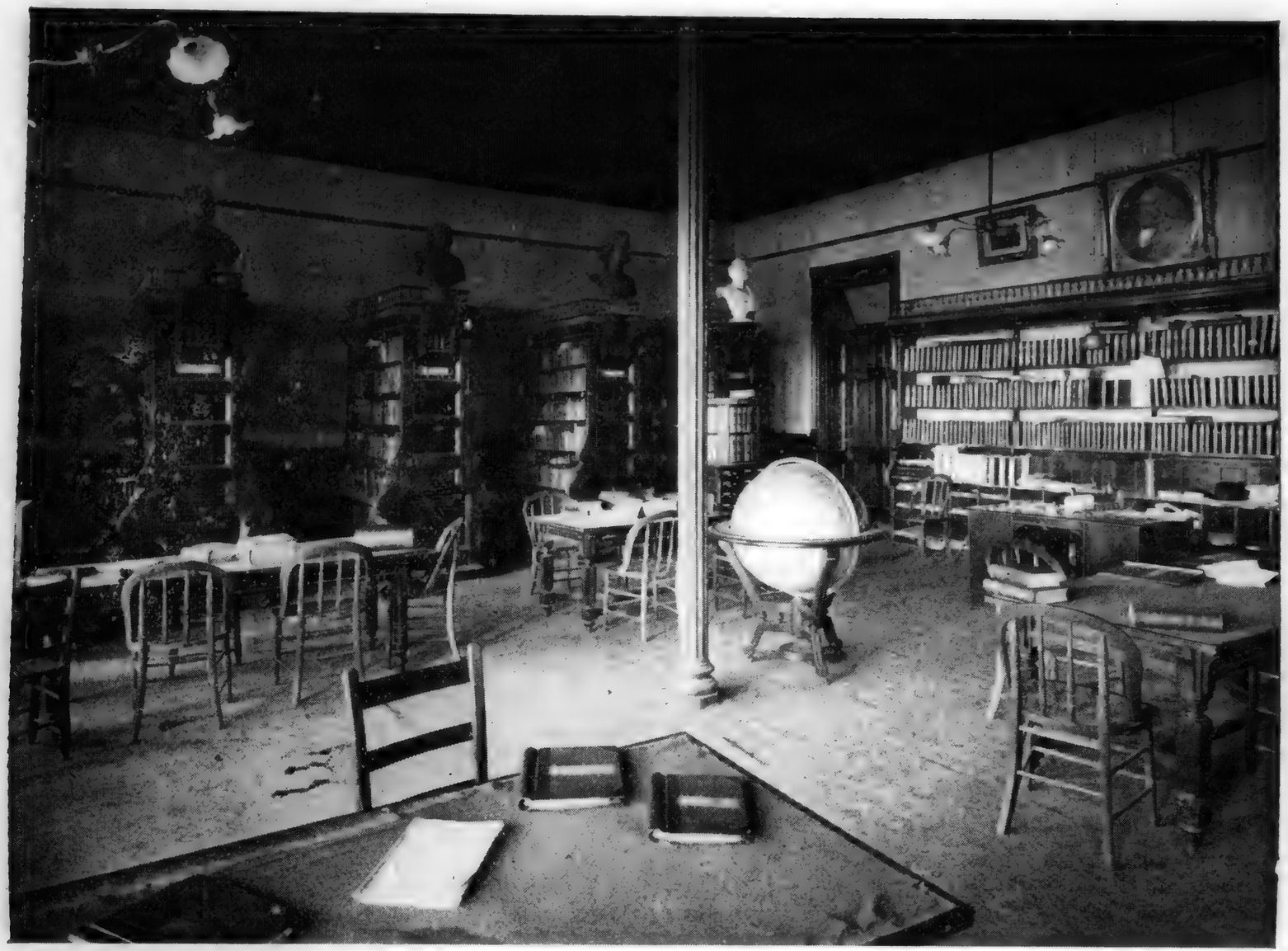
Certificates of distinction are awarded in public on commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class, provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervening intervals reports, giving the grade made by each student, are sent to the parent or guardian.



GENERAL LIBRARY.

EXAMINATIONS.

Written examinations on the studies of the month are held by each professor during the months of October, February, and April. Each examination occupies one hour.

At the end of each term written examinations, or written and oral, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations, can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except in extreme cases.

LIBRARY.

The library occupies an elegant, well-lighted room in the main building, and also two smaller adjacent rooms. It contains over 14,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room, and is thus made an important educational feature.

MUSEUM.

The museum occupies a large room in the third story. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character. It is under the charge of Professor P. H. Mell, to whom specimens as contributions may be sent.

BOARDING HOUSES.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after "call to quarters," or are guilty of any violation of order. The report of the inspector is made to the Commandant on alternate days of the week.

Students, after selecting their boarding-houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons.

Permission to board and lodge at separate houses will be granted only to seniors, to cadets twenty-one years of age and to those who are on the "honor roll," except on special conditions.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Incidental fee, per half session	$2 50
Library fee, per half session	1 00
Surgeon's fee, per half session	2 50
	$6 00

These fees are payable, $6.00 on matriculation and $6.00 on February 1st. By order of the Trustees no fees can be remitted.

For students entering after January 1st, the fees for a half session only are required.

For a non-resident of the State there is a charge for tuition of $20.00 per session, payable $10.00 on matriculation and $10.00 on February 1st, in addition to the semi-annual fee of $6.00 payable by all students.

Board, including lodging, fuel and lights is furnished at $12.50 to $15.00 per month.

The necessary expenses for a session, not including uniforms or books, are for a resident of Alabama, as follows:

College fees	$ 12.00	$ 12.00
Board, lodging, fuel and lights	108.00	135.00
Washing	9.00	9.00
Total	$129.00	$156.00

By special arrangement with the College authorities Mrs. M. L. Mitchell, Mrs. A. Debardeleben, and Mrs. S. M. Anderson will accommodate students with board, lodging, fuel, &c., for $9.50 per month.

By boarding at one of these houses the necessary expenses may be reduced to $106.50 per session. This estimate does not include the cost of the uniform, about

$14.00, or of books, say from $5.00 to $15.00, or the laboratory fees in the higher classes, $5.00 or $10.00.

LABORATORY FEES.

For each student in the junior or senior laboratory in chemistry, or in electrical and mechanical engineering, a fee of $5.00 per session is required. This fee is payable on admission to the laboratory, and is not remitted.

NON-RESIDENT STUDENTS.

Tuition for students not residents of Alabama is $20.00 per session, unless remitted by the Trustees to worthy students upon the recommendation of the Faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year, to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remitted to sons of ministers of the gospel.

HONOR SCHOLARSHIPS.

The following non-resident students were granted, each, by reason of special merit in conduct and scholarship during the session '98-99, an honor scholarship, which exempted from tuition fees:

W. W. Askew.....Georgia.
E. Bukofzer.....Tennessee.
J. D. Elliott.....Wyoming.
F. C. Greene.....Georgia.
R. B. Hall.....Georgia.
A. F. Jackson.....Georgia.
M. Ketchum.....Florida.
H. M. Kilpatrick.....Georgia.
K. E. Lindrose.....Mississippi.
C. W. Nixon.....Tennessee.
H. B. Park.....Georgia.
H. P. Powell.....Georgia.
H. E. Werner.....Texas.
W. D. Willis.....Florida.
J. E. D. Yonge.....Florida.

UNIFORM.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made, by a contractor, of excellent cloth manufactured at

the Charlottesville mill. This suit, including cap, costs at present about $14.00. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

Fees to be paid on entrance:

Incidental fee	$ 2 50	
Library	1 00	
Surgeon	2 50	
Contingent fee	5 00	
Uniform	14 00	
	$25 00	
Tuition, non-resident		$10 00
		$35 00

Besides the above, the student should deposit with the Treasurer enough to pay for books, one month's board, incidentals, amounting to, say $25.00. Hence, a resident of Alabama should deposit with the Treasurer $50.00, a non-resident, $60.00.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons, or wards, whether for regular charges of college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited, checks are drawn on the Treasurer of the College by the cadet to pay his necessary expenses. These checks are paid only when officially approved. The approval is given only for necessary expenses, as stated in the catalogue, unless specially requested in writing by the parent.

The College cannot be held responsible for the expenses of a student, unless the funds are deposited with the Treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty a thesis, or oration and read and deliver the same at commencement if equired by the Faculty

There may be presented, with the approval of the professor in charge, a carefully written report of special work done in a laboratory showing independent investigation and discussion of some subject.

It must be given to the Professor of English by the first of April.

The subject must be submitted for approval by January 1st.

LITERARY SOCIETIES.

There are two literary societies connected with the College—the Wirt and the Websterian. Each has a hall in the main building.

These societies hold celebrations on the evenings of Thanksgiving Day and 22nd of February. They elect annually, with the approval of the Faculty, an orator to represent them at the close of the year.

To encourage the literary societies the Trustees have directed that a medal be awarded on commencement day to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection to be determined by the Faculty.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in the presence of the Faculty and students.

The *first and second terms* the students of the junior and sophomore classes are exercised in original orations and declamation.

The *second and third terms* the members of the senior class read essays and deliver original orations.

SOCIETY OF THE ALUMNI.

In 1885, the Alumni Society established "The Alumni Scholarship," which makes an annual loan of one hundred and seventy dollars to a beneficiary elected by the society. Eight young men have been thus enabled to

go through college. This scholarship is supported by annual contributions from the Alumni and other friends of the institution.

The beneficiary selected is admitted without charge for tuition or college fees of any character.

Subscriptions should be sent to B. H. Crenshaw, Treasurer, Auburn, Ala.

The annual alumni oration is delivered by a member of the society, in Langdon Hall, on Alumni Day, Tuesday of commencement week.

The following are officers of the society:

C. L. HARE.....President.
R. AP C. JONES.....Vice President.
CHAS. H. ROSS.....Permanent Secretary.
H. H. KYSER.....Assistant Secretary.
B. H. CRENSHAW.....Treasurer.
GEORGE H. PRICE, M. D.....Orator, 1900.

SURGEON.

The Surgeon is required to be present at the College daily, to visit at their quarters the cadets that are reported sick, and to give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering college.

ACADEMIC YEAR.

The academic year for 1900-1901 commences on Wednesday, 12th September, 1900 (*second Wednesday after the first Monday*), and ends on Wednesday, 12th June, 1901 (*second Wednesday after first Monday*), which is commencement day.

It is divided into three terms. The first term extends from the opening of the session to the 21st of December; the second term begins January 2nd, and ends March 18th; the third term continues to the close of the session.

AN ACT OF THE LEGISLATURE.

To change the name of the Agricultural and Mechanical College of Alabama.

WHEREAS, the Agricultural and Mechanical College at Auburn having by means of the appropriations made by the State legislature, and by those made and continued in recent years by the acts of Congress, developed, as originally designed, into an institution where are taught not only the branches that relate to agriculture and the mechanic arts, but also the sciences and arts in general that relate to the industrial development of modern civilization, therefore:

SECTION 1. *Be it enacted by the General Assembly of Alabama,* That said institution shall hereafter be known and designated as The Alabama Polytechnic Institute, it being provided that said Institute shall continue to perform the functions of the State college for the benefit of agriculture and the mechanic arts, in accordance with the provisions of the Acts of Congress of July 2, 1862, granting lands to the several States and territories for collegiate purposes.

Approved January 27, 1899.

(Official) ROBT. P. MCDAVID,
Secretary of State.

DONATIONS TO THE LIBRARY.

United States Government—Public Documents, 148 volumes.

Dr. P. C. Candidus, Mobile, Ala.—Works on Botany, Pharmacy, and Chemistry, 110 volumes.

American Union League Society—Facing the Twentieth Century, by James M. King, 1 volume.

T. A. Coghlan, Sydney, N. S. W.—Wealth and Progress of New South Wales, 1 volume.

A. C. Vandiver—Glomerata, volume 2.

L. B. Rainey—Glomerata, volume 3.

Dr. J. L. M. Curry—Peabody Educational Fund, 2 volumes.

DONATIONS TO THE DEPARTMENT OF ELECTRICAL ENGINEERING.

General Electric Co., 1 constant potential enclosed arc lamp, 60 incandescent lamp manuals.

The Adams Bagnall Co., 1 constant potential enclosed arc lamp.

The Roebling Co., samples of insulated wire for testing.

American Wire Co., samples of insulated wire for testing.

The Okonite Co., samples of insulated wire for testing.

Electric Appliance Co., samples of insulated wire for testing.

The Westinghouse Electric & Mfg. Co., 50 street railway histories,

DONATIONS TO AGRICULTURAL DEPARTMENT.

German Kali Works, New York, 2 tons kainit, ½ ton muriate of potash.

L. B. Baker Mfg. Co., Racine, Wis., 1 sheep collar.

Dr. J. A. Myers, New York, 3 sacks nitrate of soda.

U. S. Dept. of Agriculture, assortment of field seeds.

DONATIONS TO THE MUSEUM.

Fossils and bird eggs from Miss Bell.

Granite from Greenland and bird's skin, from Dr. Remus Persons.

Cast of trilobite from Prof. O. D. Smith.

Indian arrow head from Miss Grout.

Indian arrow head and shells from C. H. Billingsley.

Alabama fossils from C. H. Billingsley.

Conglomerate from F. Ashcraft.

Indian arrow heads from Dr. McElhany.

Alabama fossils from Miss Cozart.

Relics from an Indian mound from H. P. Powell.

Columbian silver half dollar from E. A. Miller.

Kauma gum from Samoan Islands from S. Stollenwerk.

Mica and petrifications from C. L. Harold.

Petrifications from E. H. Foy.

Quartz crystals from W. D. McCreary.

Quartz crystal from M. H. Kahn.

Indian arrow heads and pottery from E. M. Boyd.

Fossil plant from F. J. Rigney.

Fossils from W. B. Patterson.

ENTRANCE EXAMINATIONS.

The following examinations are given as models of entrance examinations, and will suggest to teachers and students the nature and scope of the work required for admission to the freshman class.

EXAMINATION IN ENGLISH.

I. GRAMMAR.

I. Name the parts of speech. Give examples of each.

II. Name and decline the personal pronouns.

III. Compare the following: *good, ill, bad, happy, perfect.* .....

IV. What is an irregular verb? A regular verb? An intransitive verb? A transitive verb? An impersonal verb? Give example of each.

V. Give the principal parts of the following verbs: *to be, to see, to dig, to lie* (to recline), *to lay, to set, to sit, to write, to love, to crow.*

VI. Give in full the present and past tenses, Indicative and Subjunctive Modes, of (1) *to be*, (2) *to love.*

VII. How is the Passive voice formed? Give Passive voice, third person, singular number, Indicative and Subjunctive of *to ask.*

VIII. Form the possessive singular and plural of *pony, valley, mouse, ox, princess, it, man.* Form plural of following words: *Radius, phenomenon, cupful, Mr., Mrs., talisman, genius, genus, attorney, zero, hero, brother-in-law.*

IX. Parse in full the following sentence: He that observeth the wind shall not sow.

X. Correct any errors in the following sentences:

1. Dot your *i*'s and cross your *t*'s.
2. Dr. Arnold of Rugby kept a famous boy's school.
3. Can I speak to my desk-mate?
4. I dont know nothing about your affairs.
5. Between you and I, I don't believe it.
6. Have you seen the book of my friend Story?
7. Has everybody performed their examples?
8. The oldest daughter has married a banker whom they say is very wealthy.
9. I intended to have written.
10. We are acquainted neither with the doctor or with his family.
11. I will be drowned; nobody shall help me.
12. We shall not go without it stops raining.

II. LITERATURE AND COMPOSITION.

Ivanhoe.

I. Who are the main characters in *Ivanhoe*? What is the date of the events of the story? Who was King of England at that time?

II. Describe the following: (1) Cedric and his home. (2) Manners and Customs of the Saxons. (3) Relations of the Saxons to the Normans.

III. Tell something about Isaac of York, Rebecca, Rowena.

IV. Describe the tournament of Ashby.

V. Who was Robin Hood?

VI. Describe the assault on the castle of Front de Bœuf.

VII. *Give the conclusion of the story.*

VIII. Write a letter giving account of your journey from home to Auburn. Pay especial attention to form, spelling, and punctuation.

NOTE.—The subject of Examination for 1900, will be taken from the list of books in Literature required for admission. [See p. 39.]

EXAMINATION IN MATHEMATICS.

I. ARITHMETIC.

I Write ten million, four thousand, and fifty: one thousand and two, ten millionths.

II. Find least common multiple of 60, 15, 24 and 25.

III. Reduce $\frac{1\frac{3}{5} \times \frac{5}{8} \times 7\frac{1}{2} - \frac{1}{2} \text{ of } \frac{4}{5} \times 5.}{(\frac{2}{3} + \frac{3}{2}) \times \frac{1}{2}}$.

IV. If 15.25 lbs. of meat cost \$.68⅝, how many lbs. of meat can be bought for a bale of cotton weighing 520 lbs. sold for 7½ cents a pound?

V. A man sold a horse for \$125 00 and gained 12½%, how much did the horse cost?

April 23rd, 1898.

VI. One day after date I promise to pay John Doe, or order, one hundred and twenty-five $\frac{75}{100}$ dollars, value received. Richard Roe.

Endorsements:

Dec. 25th, 1898—\$25.00.

April 1st, 1899—\$50.00.

How much is due Sept. 15th, 1900. Rate of interest 8%?

II. ALGEBRA.

I. (a.) Simplify by removing parentheses and combining terms:
$2x-(y+[4x-(y-2x)-3x])$.

(b.) Divide $x^{4m}+x^{2m}+1$ by $x^{2m}+x^{m}+1$.

II. Factor (a.) $4x^4-9y^2$; (b.) x^2-x-12; (c.) $x^2-a^2+2ab-b^2$; (d.) x^{m-n+2}.

III. Simplify (a) $\frac{1}{x^2-5x+6}-\frac{x-4}{x^2-4x+3}+\frac{x-3}{x^2-3x+2}$

" (b.) $\frac{a^2-b^2}{a^2-3ab+2b^2} \times \frac{ab-b^2}{a^2+ab} \div \frac{(a-b)^2}{a^2-ab}$

IV. Find value of x in (a) $\frac{11x+2}{14}+\frac{x}{7}+4=\frac{3x-2}{2}-\frac{2-7x}{3}$
Verify.

" " " " (b) $\frac{x}{a-b}-\frac{5a}{a+b}=\frac{2bx}{a^2-b^2}$. Verify,

V. Multiply $x^{\frac{3}{4}}-x^{\frac{1}{4}}y^{\frac{1}{4}}+y^{\frac{3}{4}}$ by $x^{\frac{1}{4}}+y^{\frac{1}{4}}$.

VI. Expand $(x^2-x^{-2})^2$ and write the result with positive exponents.

VII. Simplify (a.) $\sqrt{50}+\sqrt{18}-\sqrt{98}$; (b.) If a=8, b=4, c=2 find numerical value of $2a^{\frac{3}{4}}b^{-\frac{3}{2}}c^2$; (c.) Extract square root $11+\sqrt{72}$.

VIII. If the floor of a hall had been 2 feet longer, and 4 feet wider, it would have contained 528 square feet more; but if the length and width had been 2 feet less the floor would contain 316 square feet less. How many square feet in the floor?

III. GEOMETRY.—First Two Books.

I. If two parallel straight lines are cut by a third straight line, the alternate interior angles are equal.

II. The sum of the three angles of a triangle are equal to two right angles.

III. The median of a trapezoid is parallel to the bases and is equal to one half their sum.

IV. A radius perpendicular to a chord bisects it and the arc subtended by it.

V. In the same circle, or equal circles, two angles at the centre have the same ratio as their intercepted arcs.

VI. The radius of the circle inscribed in an equilateral triangle is equal to one third of the altitude of the triangle.

EXAMINATION IN UNITED STATES HISTORY.

1. Give a summary of the Navigation Acts.
2. Make a list of the causes of the Revolutionary War, and explain each briefly.
3. Why did the colonists object to the Stamp Act?
4. Point out the defects of the Articles of Confederation and explain how each of these was remedied in the Constitution.
5. Name three compromises in the Constitution and explain between what parties each was made.
6. Give an account of the Hartford Convention.
7. What was the purpose of the Embargo Act?
8. Explain three of the following:
   (1) Ordinance of 1787; (2) Missouri Compromise; (3) Monroe Doctrine; (4) Omnibus Bill.
9. What was meant by Nullification and on what ground did South Carolina base its right to nullify the tariff?
10. Make a list of the causes of the Civil War and explain each.

EXAMINATION IN LATIN.

Required of students who propose to continue that study in the freshman class (not required for admission to college).

I. (1) Translate Cæsar, Bk. II, Chapter 13.
   [Note:—Instead of Cæsar a selection from Nepos, or other equivalent may be substituted.]
   (2) Give the principal parts of the first six verbs in the above Latin.
   (3) Tell what verbs in the above are in the Subjunctive and explain their use.
   (4) Do the same for all verbs in the Infinitive.

II. (1) How do you express in Latin, (a) the Agent, (b) Manner, (c) Place Where, (d) Duration of Time?
   (2) Give an example in *English* of (a) Hortatory Subjunctive, (b) Clause of Purpose, (c) Indirect Question.

III. Write in Latin:
   (1) Cæsar comes (venire) to Italy.
   (2) The soldiers (miles) asked (rogare) aid (auxilium).
   (3) We shall come to Italy from Greece (Græcia).

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Stockton, Calif.

Catalogue of the Alabama Polytechnic Institute

1900

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▶   6  049     AAAA ¶
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▶  12  260     Auburn, Ala. : ǂb [The Institute], ǂc 1900- ¶
▶  13  300     41 v. : ǂb ill. ; ǂc 23 cm. ¶
▶  14  310     Annual ¶
▶  15  362 0   1900-1939-40. ¶
▶  16  500     Some years issued as part of the Bulletin of the Alabama
Polytechnic Institute. ¶
▶  17  500     Title varies slightly. ¶
▶  18  533     Microfilm. ǂm 1900-1940. ǂb Mobile, Ala. ǂc Document Technology,
ǂd 1997. ǂc   microfilm reels : negative ; 35 mm. ¶
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▶  20  610 20  Alabama Polytechnic Institute ǂx Curricula ǂx Periodicals. ¶
▶  21  780 00  Agricultural and Mechanical College of Alabama. ǂt Catalogue of
the Alabama Polytechnic Institute ¶
▶  22  785 00  Alabama Polytechnic Institute. ǂt Alabama Polytechnic Institute ¶
▶  23  830  0  Bulletin of the Alabama Polytechnic Institute ¶
▶  24  830  0  USAIN State and Local Literature Preservation Project ¶
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ALABAMA POLYTECHNIC INSTITUTE
CATALOGUE
1900/01

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AUBURN UNIVERSITY
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ALABAMA POLYTECHNIC INSTITUTE

1900 - 1901

Catalog of students
1900 - 1901
p. 24

Auburn
Alabama
1901

AUBURN UNIV
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no.2

CALENDAR, 1901-1902.

Session Begins	Wednesday, Sept. 11, 1901.
Examination for admission	Wednesday, Sept. 11, 1901.
First term begins	Wednesday, Sept. 11, 1901.
Literary Society Celebration—Thanksgiving Day	Nov. 28, 1901.
First term ends	Friday, Dec. 20, 1901.
Second term begins	Thursday, Jan. 2, 1902.
Literary Society Celebration	Saturday, Feb. 22, 1902.
Senior class exercises	Saturday, Feb. 22, 1902.
Second term ends	Saturday, March 15, 1902.
Third term begins	Monday, March 17, 1902.
Senior Thesis Reported	Thursday, May 1, 1902.
Sophomore class exercises	Thursday, May 1, 1902.
Field day	Thursday, May 1, 1902.
Final examinations begin	Friday, May 30, 1902.
Commencement sermon	Sunday, June 8, 1902.
Annual meeting of Trustees	Monday, June 9, 1902.
Military exercises, 4 p. m.	Monday, June 9, 1902.
Junior class celebration, 8 p. m.	Monday, June 9, 1902.
Alumni day	Tuesday, June 10, 1902.
Military exercises, 5 p. m.	Tuesday, June 10, 1902.
Address before Literary Societies, 8 p. m.	Tuesday, June 10, 1902.
Commencement day	Wednesday, June 11, 1902.


MAIN BUILDING,
ALABAMA
POLYTECHNIC INSTITUTE.

CATALOGUE

OF THE

Alabama Polytechnic Institute.

STATE COLLEGE

FOR THE

BENEFIT OF AGRICULTURE AND THE MECHANIC ARTS.

AUBURN, ALABAMA

1901.

MONTGOMERY, ALABAMA
THE BROWN PRINTING COMPANY PRINTERS AND BINDERS
1901

TRUSTEES.

His Excellency, WM. J. SAMFORD, President .....*Ex-Officio.*
JNO. W. ABERCROMBIE, Superintendent of Education..*Ex-Officio.*

TERM EXPIRES, 1907.

JONATHAN HARALSON,.. .. ..Selma, Ala.
THOMAS WILLIAMS,..... .....Wetumpka, Ala.
J. A. BILBRO, ...Gadsden, Ala.

TERM EXPIRES, 1905.

J. M. CARMICHAEL, ...Ozark, Ala.
W. K. TERRY, ...Birmingham, Ala.
T. H. FRAZER, ...Mobile, Ala.
I. F. PURSER,.....Opelika, Ala.

TERM EXPIRES, 1903.

R. F. LIGON, JR.....Montgomery, Ala.
TANCRED BETTS, ...Huntsville, Ala.
W. C. WHITAKER, ...Tuscaloosa, Ala.

E. T. GLENN, Treasurer. J. H. DRAKE, M. D., Surgeon.
R. W. BURTON, Secretary.

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1900/01
C. 2
BARKSDALE
FEB 26 '94

FACULTY AND OFFICERS.

WM. LEROY BROUN, M. A., LL. D.,
President.

OTIS DAVID SMITH, M. A., LL. D.,
Professor of Mathematics.

PATRICK HUGHES MELL, M. E., PH. D.,
Professor of Botany and Geology.

JAMES HENRY LANE, C. E., M. A., PH. D., LL. D.,
Professor of Civil Engineering and Drawing.

CHARLES COLEMAN THACH, M. A.,
Professor of English and Political Economy.

GEORGE PETRIE, M. A., PH. D.,
Professor of History and Latin.

*BENNETT BATTLE ROSS, M. Sc.,
Professor of General and Agricultural Chemistry and State Chemist.

JOHN JENKINS WILMORE, M. E.,
Professor of Mechanical Engineering and Director of Laboratory.

CHARLES ALLEN CARY, B. Sc., D. V. M.,
Professor of Physiology and Veterinary Science.

EMERSON R. MILLER, PHAR. M., M. Sc.,
Professor of Pharmacy.

JOHN FREDERICK DUGGAR, M. Sc.,
Professor of Agriculture.

FRANK SUMNER EARLE,
Professor of Biology and Horticulture.

ARTHUR ST. CHARLES DUNSTAN, M. E., C. E.,
Professor of Electrical Engineering and Physics.

JOHN EDWARD WIATT, M. A.,
Professor of Modern Languages.

BOLLING HALL CRENSHAW, M. E.,
Associate Professor of Mechanical Engineering and Mathematics.

BENJAMIN SWEAT PATRICK, E. & M. E.,
Commandant and Acting Professor of Military Science.

PAUL INGOLD MURRILL, M. Sc., PH. D.,
Acting Professor of General and Agricultural Chemistry.

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*Absent on leave, at University in Germany.

207893

HENRY HEARST KYSER, E. & M. E.,
Assistant Professor of Physics and Electrical Engineering.

MICHAEL THOMAS FULLAN, M. Sc.,
Assistant Professor of Mechanic Arts.

CLIFFORD LEROY HARE, M. Sc.,
Instructor Chemical Laboratory.

ROBERT JEFFERSON TRAMMELL, C. E.,
Instructor in Mechanic Arts.

WILLIAM OSCAR SCROGGS, M. Sc.,
Assistant Librarian and Assistant in English.

(a) WILLIAM WELCH HILL, E. & M. E.,
Assistant in Mechanic Arts.

HARRY STREETY HOUGHTON, B. Sc.,
Assistant in Chemistry.

JAMES RICHARD RUTLAND, B. Sc.,
Assistant in Sub-Freshman English and Mathematics.

JOHN WILLIAM JEPSON, B. Sc.,
Assistant in Electrical Engineering.

CHARLES LEWIS HAROLD, B. Sc.,
Assistant in English.

WILLIAM CHRISTOPHER MARTIN, B. Sc.,
Assistant in Civil Engineering and Drawing.

(b) EDWARD ZELLARS HEARD, B. Sc.,
Assistant in Mechanic Arts.

CHARLES WELLINGTON NIXON, B. Sc.,
Assistant in Chemistry.

(c) ELLIS MADISON DUNCAN, B. Sc.,
Assistant in Veterinary Science.

JESSE WRIGHT BOYD, B Sc.,
Assistant in Latin and History.

ENOCH MARVIN MASON, B. Sc.,
Assistant in Biology and Pharmacy.

ARTHUR FLOURNOY JACKSON,
Student Assistant in charge of Gymnasium.

(a) Appointed March 6th, vice T. H. McAdory resigned.
(b) Appointed January 1st, vice H P. Powell, resigned.
(c) Appointed March 1st, vice E. A. Miller, resigned.

COMMITTEES OF THE FACULTY.

COMMITTEE ON DISCIPLINE,
Professors Smith, Thach, Mell.

COMMITTEE ON ENTRANCE EXAMINATION,
Professors Smith, Thach, Petrie.

COMMITTEE ON EXAMINATION OF SPECIAL STUDENTS.
Professors Wilmore, Dunstan, Miller.

COMMITTEE ON PUBLIC LECTURES,
Professors Petrie, Dunstan, Kyser.

COMMITTEE ON LIBRARY,
Professors Thach, Petrie, Wiatt.

COMMITTEE ON ATHLETICS,
Professors Ross, Mell, Dunstan, Kyser, Petrie.

SUPERINTENDENT OF GROUNDS AND BUILDINGS,
Professor Wilmore.

CURATOR OF MUSEUM,
Professor Mell.

SECRETARY OF ALUMNI RECORD,
Professor Crenshaw.

AGRICULTURAL EXPERIMENT STATION.

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION.

THOS. WILLIAMS ..... Wetumpka, Ala.

JONATHAN HARALSON ..... Selma, Ala.

STATION COUNCIL.

WM. LEROY BROUN ..... President.

P. H. MELL ..... Director and Botanist.

B. B. ROSS ..... Chemist.

C. A. CARY, D. V. M. ..... Veterinarian.

J. F. DUGGAR ..... Agriculturist.

F. S. EARLE, ... Biologist and Horticulturist.

J. T. ANDERSON ..... Associate Chemist.

ASSISTANTS.

C. L. HARE ..... First Assistant Chemist.

*C. W. NIXON ..... Second Assistant Chemist.

H. S. HOUGHTON ..... Third Assistant Chemist.

T. U. CULVER ..... Superintendent of Farm.

R. W. CLARK ..... Assistant Agriculturist.

C. F. AUSTIN ..... Assistant Horticulturist.

C. F. BOYD ..... Assistant to Director.

OFFICER IN CHARGE OF FARMERS' INSTITUTES.

DR. C. A. CARY.

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*Appointed Feb. 1st, vice J. Q. Burton, resigned.

The Institute is a distinctive school of Science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts established by the State in 1872, by endowing it with the land-grant appropriation made by the U. S. Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

In its course of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty. The Institute thus endeavors to educate as well as instruct, to form character as well as give information of value.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The Institute now possesses facilities for giving laboratory instruction in applied science in the following departments:

I—IN AGRICULTURE AND HORTICULTURE.

The farm contains 304 acres, and is supplied with illustrative specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who entered upon this course of study.

II—IN MECHANIC ARTS.

The laboratory of mechanic arts is used as an auxiliary in industrial education, and as a school of manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is instructive in character, as in any other

laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the Institute each student enters this school and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus by associating manual and mental training, to educate thoroughly the student for the duties of life, whatever may be his vocation. There is no attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall, 90x50 feet, and is provided with a twenty-five horse-power Corliss engine, a planer, circular saw, band-saw, two scroll saws, a buzz planer, a pattern maker's lathe, twenty-four stands, each with a lathe and a full set of tools, and thirty benches for carpenter work with the tools requisite for construction.

A brick building, 52x87 feet, with two rooms, has been constructed especially for instruction in working iron.

One room is equipped with twenty-four forges and tools required for a forge department, and the other with a Colliau cupola furnace, a core oven, a brass furnace, molding benches, foundry crane constructed by students, and special tools for use in a foundry.

The forge and foundry rooms are furnished with a fan and exhauster, supplied with power from an engine, constructed by the students in mechanic arts.

The machine department occupies a brick building, 30x50 feet, and is equipped with eleven engine lathes, one speed lathe, one 20-inch drill press, one 10-inch sensi-

tive drill, one 16-inch shaper, one 5-foot planer, one universal milling machine, a corundum tool grinder, a small emery grinder, a No. 1 Brown & Sharpe universal grinding machine, and a power hack saw.

The chipping and filing department is arranged with benches, vises and tools for twelve students.

The tool room is well supplied with special tools for use in instruction, including a machine for grinding twist drills. The rooms are lighted with electricity whenever necessary.

III—IN PRACTICAL CHEMISTRY.

The chemical laboratory is supplied with modern apparatus, and in its equipment affords excellent facilities for instruction in practical chemistry and for investigation.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates sixty students, a special laboratory for Seniors that will accommodate thirty students, a lecture room with a capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

IV—IN ELECTRICAL ENGINEERING.

The electrical laboratory is well supplied with modern appliances for instruction in electrical engineering. It occupies three large rooms in the basement and is equipped with many fine instruments of precision.

In addition to resistance boxes, bridges, condensers, galvanometers, dynamometers, wattmeters, photometers, and other laboratory instruments, the department is supplied with representatives of the best types of commercial electrical instruments from foreign and domestic makers.

The laboratory is also equipped with apparatus for making break-down tests of insulating materials, up to 30,000 volts, also with spectroscopic apparatus for testing the quality of arc light carbons.

The dynamos occupy a separate building and are operated by a twenty-five horse power Atlas engine, and a thirty-five horse power Westinghouse engine. In this building are installed the following dynamos:

Edison compound 12 Kilo-watt generator, Thomson-Houston 150 light 110 volt dynamo, Weston 150 volt 25 ampere generator, Crocker-Wheeler one horse power motor, Ideal 3 phase alternator, Brush 6 arc light dynamo with lamps, two Baxter street car motors, 20 horse power each (so connected as to be used as direct or alternating current motors or generators), one 5 horse power three phase motor, one General Electric 20 horse power motor, one 40 light shunt dynamo, one Edison 3 Kilowatt generator, one Stanley induction motor with condensers, two bi-phase induction motors (built by students), one 9 light Thomson-Houston arc machine, two phase alternator and 500 volt 20 ampere generator, made by students. There is also in connection with this department at the experiment station, a ten horse power motor, made by students, which is operated by the 500 volt generator in the dynamo room.

V—IN PHYSICS.

The physical laboratory occupies two rooms, one of these being permanently darkened for experimental work in light.

It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, a horizontal comparator, a Kater's reversion pendulum, balances, etc., and a quantity of minor apparatus.

Recently there has been added a concave grating spectrograph, a large induction coil of .12 inch spark, and other apparatus of value.

VI—IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate thirty students, with an excellent collection of minerals.

VII—IN BOTANY.

In the work of the agricultural experiment station there is a botanical garden under the charge of the professor of botany; investigations in botany are given special attention, and opportunities are offered advanced students for practical work in a laboratory especially fitted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research. This department is provided with Auzoux's clastic models of seeds and flowers for teaching botany.

VIII.—IN BIOLOGY.

The laboratory in this department adjoins the lecture room of the professor, and is furnished with tables, ex-

cellent microscopes and appliances for investigation. Each student of the class works under the supervision of the professor.

IX—IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, models of bridges, etc., is provided for the use of the students, and the customary exercises in the field are given.

X—IN DRAWING.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing room, which will accomodate fifty students, is provided with tables, lock-boxes, etc.

XI—IN MECHANICAL ENGINEERING.

The mechanical course has been extended to include experimental work in mechanical engineering.

The apparatus available for this instruction is as follows: A 45-horse power Imperial Cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Deane air pump and circulating pump, a 25-horse power Harris-Corliss engine, a 35 horse power Westinghouse engine, two 9 horse power engines constructed by students, the boilers belonging to the regular power plant, a Deane duplex steam pump, a 4-horse power gasoline engine, an Ericsson hot air engine, a New York air pump, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, thermometers, a pyrometer, scales,

a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester with weights for correcting the standard gauge, a 35,000-pound testing machine, a Henning micrometer extensometer, and a Carpenter calorimeter with the necessary auxiliary apparatus for determining the heating value of different kinds of coal.

This work is now carried on in the lower story of the annex to the chemical laboratory. This room is 30x60 feet in size and was specially designed and fitted up for this purpose. A three-inch steam main has been laid from the boiler house, thus securing a steam supply in the building for all work requiring it. The work is thoroughly practical, and it is desired to extend it as rapidly as the funds available for the purchase of apparatus will allow.

XII—IN PHYSIOLOGY AND VETERINARY SCIENCE.

There has been constructed for the veterinary department a new and separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, and museum with skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room constructed, with cement floor and north roof light especially for this department. This Laboratory is used by the professor and students each afternoon for three months.

XIII—IN PHARMACY.

The laboratory of this department occupies the second floor of the annex to chemical laboratory, and is pro-

vided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations.

The students work in the laboratory with the professor, from five to eight hours, six days in the week.

The facilities are increased as means are available.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE BUILDINGS.

The frontispiece is a representation of the main College building. It is 160 x 71 feet and contains forty-five rooms. This building is not used for dormitories for students, but is appropriated to purposes of instruction and investigation.

It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc.

LANGDON HALL.

This is a two-story building, 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

The first story is appropriated to the laboratory of mechanic arts.

THE CHEMICAL LABORATORY.

As shown on the opposite page this is a two story structure, 40 by 60 feet, with a rear projection, 35 by 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and terra cotta ornamentation.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains improved working tables, with water, gas and every necessary appliance for chemical work.

The laboratory for advanced work in chemistry will accommodate thirty students and is equipped in the same manner. Adjoining this are two rooms which are used respectively as a balance room, and a room for work with spectroscope, polariscope, etc.

The second story contains a lecture room with seats and tablets for eighty students. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and mechanical chemistry, prominent subjects taught in the institution.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building, containing rooms for pharmacy, mechanical engineering, and drawing.

The Chemical Laboratory for the Agricultural Experiment Station occupies a building 60 by 26 feet and is appropriated exclusively for chemical investigation and research, and not for instruction.



HONOR ROLL FOR CONDUCT, IN 1900.

The following cadets having received no demerits during the year, their names are placed upon the honor roll for good conduct:

SUB-FRESHMAN CLASS.

Haynie, C. D.
Jones, A. D.
Matthews, J. V.
Roberts, R. H.
Rutledge, C. P.
Stewart, B. M.
Williamson, G. T.
Sullivan, H. J.

SPECIAL AND IRREGULAR STUDENTS.

Brannon, P. A.
Crumpler, L. H.
Cameron, W. J.
Conner, H. H.
Haigler, W. H.
Marks, G. M.
Rennie, A. K.
Reid, H. V.
Sargent, H. O.
Sellers, W. A.
Stickle, H. S.

FRESHMAN CLASS.

Allen, G. W.
Bize, M. L.
Bruister, W. J.
Chipley, D.
Davis, H. E.
Davis, W. W.
Goldthwaite, C. B.
Halsey, W. L.
Hawkins, H. C.
Hill, G. B.
Horn, A. G.
Hunt, F. E.
Jordan, I. L.
Kauffman, R.
Knight, W. J.
Matson, T. H.
Maberry, E. L.
McLain, A. D.
Mitchell, J. H.
Preuit, G. N.
Rhodes, R. G.
Thornton, W. L.
Walker, I. W.
Yonge, H. M.
Moseley, W. F.

SOPHOMORE CLASS.

Askew, W. M.
Dawson, R. G.
Ellis, M.
Hamilton, W. B.
Houston, F. J.
Johnson, C. J.
Kyser, J. A.
Swanson, J. G.
Snedecor, G. W.
Wallace, C. N.
Webb, J. O.
Willis, W. D.
Yonge, J. E. D.

JUNIOR CLASS.

Arnold, R. T.
Bivings, F. C.
Bragg, T.
Eagar, W. H.
Fitch, H. L.
Felton, L. M.
Foy, J. D.
Goggans, J. O.
Haley, P. S.
Jackson, A. F.
Kahn, M. D.
Kelly, E.
Killebrew, E. S.
Letcher, J. T.
McCrary, W. D.
McGehee, W. B.
Meriwether, B. B.
Parker, D. J.
Smith, H. M.
Turpin, M. C.
Werner, H. E.
Williams, J. C.

SENIOR CLASS.

Ashcraft, F.
Beeson, M. A.
Boyd, G. F.
Boyd, J. W.
Brooks, M. M.
Bukofzer, E.
Culver, A. N.
Dowdell, W. C.
Duncan, E. M.
Duncan, L. N.
Flowers, J. J.
Hall, H. Y.
Hall, R. B.
Heard, E. Z.
Illges, J. P.
Jepson, J. W.
Kahn, M. F.
Kelley, W. E.
Martin, W. C.
Maples, J.
Mason, E. M.
McGehee, J. H.
Miller, E. A.
Nixon, C. W.
Osburn, W. F.
Powell, H. P.
Rutland, J. R.
Rutledge, W. S.
Shuff, J. W.

GRADUATES IN 1900.

CLASS OF 1900.

HONOR GRADUATES.

COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

John William Jepson ..... South Carolina

COURSE IN CIVIL ENGINEERING.

William Christopher Martin ..... Barbour

GENERAL COURSE.

Charles Lewis Harold ..... Escambia

COURSE IN PHARMACY.

Enoch Marvin Mason ..... Lee

DEGREES.

BACHELOR OF SCIENCE.

Frank Hunter Anderson ..... Bullock
William Lawrence Anderson ..... Montgomery
Fletcher Ashcraft ..... Lauderdale
Malcolm Alfred Beeson ..... Etowah
John Samuel Black ..... Lee
Guy French Boyd ..... Lee
Jesse Wright Boyd ..... Lee
Millard Morse Brooks ..... Escambia
Edwin Bukofzer ..... Tennessee
Rufus White Butler ..... Lee
Judson Lamar Burke ..... Lee
Andrew Crozier Cameron ..... Jefferson
Sallie McGehee Clark ..... Montgomery
Asbury Nicholson Culver ..... Lee
Emma Beall Culver ..... Lee
William Crawford Dowdell ..... Lee
Ellis Madison Duncan ..... Franklin
Luther Noble Duncan ..... Franklin
Rutherford Sylvanus Finch ..... Montgomery
John Jefferson Flowers ..... Butler
Erle Humphreys Foy ..... Barbour
Bertha Mae Grout ..... Lee

Roland B Hall ..... Georgia
Harry Young Hall ..... Jefferson
Charles Lewis Harold ..... Escambia
Edward Zellars Heard ..... Lee
Mabel Heard .. .. Lee
Mary Katherine Hollifield ..... Lee
George Martin Illges .. .. Montgomery
John William Jepson ..... South Carolina
Walter Eldrade Johnson ..... Madison
Moses Frank Kahn ..... Lee
Wilbur Edrald Kelley ..... Jefferson
John Maples ..... Russell
William Christopher Martin ..... Barbour
Enoch Marvin Mason ..... Lee
James Hardie McGehee ..... Montgomery
Graham Edwin Merchant ..... Lee
Edward Andrew Miller ..... Marshall
William Livingston Neill ..... Jefferson
Charles Wellington Nixon .. .. Tennessee
William Forney Osburn ..... Lee
Hiram Perry Powell ..... Georgia
Fleming James Rigney ..... Madison
James Richard Rutland ..... Chambers
William Stowe Rutledge ..... Lee
Frederick Blount Shepard ..... Mobile
Mary Robbins Sampey ..... Conecuh
John Winfred Shuff ..... Talladega
Joseph Manning Steiner ..... Butler
Moses Conrad Wright .. .. Macon

MASTER OF SCIENCE.

Robert Higgins Adams ..... Pike
Bailey Edgar Brown ..... Morgan
Walter Eldrade Johnson ..... Madison
Kate Meade Lane ..... Lee
William Oscar Scroggs ..... Georgia

CIVIL ENGINEERING.

Arthur Henry Feagin ..... Barbour

ELECTRICAL AND MECHANICAL ENGINEER.

Thomas Hennington McAdory ..... Jefferson
Isham Fennell McDonnell ..... Madison

DISTINGUISHED STUDENTS.

Students who receive a grade above 90 in three studies in the freshman class, in four in the Sophomore, in five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded

HONOR CERTIFICATES.

The following students received honor certificates in 1900:

SENIOR CLASS.

Malcolm Alfred Beeson	Etowah
John Samuel Black	Lee
Jesse Wright Boyd	Lee
Edwin Bukofzer	Tennessee
Sallie McGehee Clark	Montgomery
Emma Beall Culver	Lee
William Crawford Dowdell	Lee
Luther Noble Duncan	Franklin
Bertha Mae Grout	Lee
Roland B. Hall	Georgia
Harry Young Hall	Jefferson
Charles Lewis Harold	Escambia
Mary Katherine Hollifield	Lee
John William Jepson	South Carolina
Moses Frank Kahn	Lee
William Christopher Martin	Barbour
Enoch Marvin Mason	Lee
Edward Andrew Miller	Marshall
Charles Wellington Nixon	Tennessee
William Forney Osburn	Lee
Fleming James Rigney	Madison
James Richard Rutland	Chambers
Mary Robbins Sampey	Conecuh

HONOR STUDENTS IN THE JUNIOR CLASS.

COURSE IN CHEMISTRY AND AGRICULTURE.

Thomas Bragg ..... Lee

COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

Eugene Flynn Enslen ..... Jefferson

CIVIL ENGINEERING.

Paul Shields Haley ..... Walker

GENERAL COURSE.

John Talbert Letcher ..... Macon

COURSE IN PHARMACY.

William Boyd McGehee..... Montgomery

JUNIOR CLASS.

Robertson Tanner Arnold ..... Florida
Herschel Winston Bass ..... St. Clair
Thomas Bragg ..... Lee
William Hamilton Eagar ..... Winston
Eugene Flynn Enslen ..... Jefferson
John Drewry Foy ..... Barbour
Paul Shields Haley ..... Walker
Arthur Flournoy Jackson ..... Georgia
William Boyd McGehee ..... Montgomery
Emmett Stephens Killebrew ..... Dale
John Talbert Letcher ..... Macon
Karl Edward Lindrose ..... Mississippi
Isaac Lenoir Moore ..... Lee
Dorsey Julian Parker ..... Escambia
Shepherd Harrison Roberts ..... Montgomery
Louis Sternfeld ..... Montgomery
Henry Edward Werner ..... Texas

SOPHOMORE CLASS.

William Warren Askew ..... Georgia
William Cruse Coles ..... Marshall
Jesse Duncan Elliott ..... Minnesota
Marvin Ellis ..... Morgan
James Browder Garber ..... Hale
Morris Ketchum ..... New York
James Allen Kyser ..... Dallas
Martin James Lide ..... Dallas

Richard Blount Shepard ..... Mobile
George Waddell Snedecor ..... Jefferson
John Griffin Swanson ..... Macon
Walker Dorr Willis ..... Florida
John Eayres Davis Yonge.....Florida.

FRESHMAN CLASS.

Dudley Chipley ..... Florida
Earl Cline ..... Jefferson
Sidney Cornell ..... Jefferson
Howard Ellis Davis ..... Mobile
William Watson Davis ..... Mobile
Thomas Joseph Dowdell ..... Montgomery
William Lanier Halsey ..... Madison
Frank Edward Hun. ..... Jefferson
Roy Kauffman ..... Mobile
Walter Joseph Knight ..... Mobile
Thomas Hatcher Matson ..... Talladega
John Harris Mitchell ..... Georgia
Gregg Newton Preuit..... Lawrence
Russell Bates Preuit ..... Lawrence
William Watson Rutland ..... Chambers
William Lawson Thornton ..... Talladega
Ivy Whitson Walker ..... Colbert
Henry Mathews Yonge ..... Florida

CATALOGUE OF STUDENTS.

FOR THE SESSION OF 1900-1901.

GRADUATE STUDENTS.

[*Residence in Alabama when State is not given.*]

NAME.	RESIDENCE.
Guy French Boyd	Lee
Jesse Wright Boyd	Lee
Mattie Lucile Burton	Lee
Toccoa Cozart	Lee
Emma Beall Culver	Lee
Ellis Madison Duncan	Franklin
Charles Lewis Harold	Escambia
Edward Zellars Heard	Lee
Mabel Heard	Lee
John William Jepson	South Carolina
William Christopher Martin	Barbour
Enoch Marvin Mason	Lee
Edward Andrew Miller	Marshall
James Lewis Molder	Chambers
Charles Wellington Nixon	Tennessee
Hiram Perry Powell	Georgia
James Richard Rutland	Chambers

UNDERGRADUATE STUDENTS.

SENIOR CLASS.

Robertson Tanner Arnold	Florida
Herschel Winston Bass	St. Clair
Idaline Bell	Lee
Frank Carlisle Bivings	Georgia
Kenneth Bradford	Montgomery
Thomas Bragg	Lee

Samuel Hamner Browne ..... Tuscaloosa
Salmon Holmes Burns..... Lee
David James Castleman ..... Hale
Herschel Henry Conner ..... Macon
William Hamilton Eagar.....Winston
Eugene Flynn Enslen ..... Jefferson
LeRoy Madison Felton ..... South Carolina
John Drewry Foy ..... Barbour
James Olney Goggans ..... Tallapoosa
Walter Lee Greene ..... Lee
William Hope Haigler ..... Montgomery
Paul Shields Haley ..... Walker
Alexander Cameron Hannon ..... Montgomery
Michael Smith Harvey ..... Lee
Charles Henry Haynes ..... Bullock
Daniel Hagood Haynes ..... Dallas
James Kelly Haynie ..... Montgomery
Arber Samuel Hertz..... Georgia
Robert Holland Hood ..... Jefferson
Arthur Flournoy Jackson ..... Georgia
James Baxter Jackson ..... Lee
Jefferson Franklin Jones ..... Sumter
Myron Daniel Kahn ..... Lee
Claude Kauffman ..... Mobile
Emmett Stephens Killebrew ..... Dale
William Reid Lancaster ..... Lee
John Talbert Letcher ..... Macon
Karl Edward Lindrose ..... Mississippi
Walter Deems McCrary ..... Lee
William Boyd McGehee ..... Montgomery
Benjamin Baldwin Meriwether .....Montgomery
Abram Hill Mitchell ..... Lee
Isaac Lenoir Moore ..... Lee
Merrill Hastings Moore.....Montgomery
William Louis Noll ..... Tennessee

Dorsey Julian Parker ..... Escambia
James Cochran Phelps ..... Lee
James Blackmon Powell ..... Bullock
Shepherd Harrison Roberts.....Montgomery
Harvey Owen Sargent ..... Franklin
Oscar Menderson Schloss.....Barbour
Lyman Hall Shaw ..... Sumter
Henry Alexander Skeggs ..... Morgan
John Hunt Skeggs ..... Morgan
Matthew Scott Sloan ..... Mobile
Holland McTyeire Smith ..... Lee
Louis Sternfeld ..... Montgomery
Godfrey Rhodes Thomas.....Sumter
Manly Curry Turpin ..... Virginia
Henry Edward Werner ..... Texas
Leonidas Wharton ..... Cherokee
Gaius Whitfield..... .....Marengo
Jere Crawford Williams ..... Lee
John Rutledge Williams ..... Jefferson
Edward Houston Wills ..... Lee

JUNIOR CLASS.

Oliver Hannibal Alford.....Marshall
William Warren Askew ..... Georgia
Frederick Cornelius Atkinson ..... Dale
Charles Homer Billingsley ..... Elmore
Edward Lambeth Carroll ..... Florida
William Cruse Coles ..... Marshall
Clyde Allen Collins ..... Hale
Alpheus Mallette Davis ..... Florida
Robert Geoghegan Dawson ..... Montgomery
Jesse Duncan Elliott ..... Minnesota
Marvin Ellis ..... Morgan
James Douglas Farley ..... Lee

Clarence Eugene Feagin ..... Bullock
James Browder Garber ..... Hale
Arthur Rodfer Gray ..... Florida
Jeremiah Warren Gwin ..... Jefferson
William Houston Gwin ..... Jefferson
William Bulger Hamilton ..... Elmore
Clifton Duane Haynie ..... Lee
William Tillman Heard ..... Lee
Oscar Lynn Henry ..... Marshall
Dallas Tabor Herndon ..... Henry
Franklin Jerome Houston ..... Jefferson
Collins James Johnson ..... Missouri
Albert Sidney Johnson ..... Colbert
Morris Ketchum ..... New York
Howard Malcolm Kilpatrick ..... Georgia
James Allen Kyser ..... Dallas
Martin James Lide ..... Dallas
Gaston Joel Lipscomb ..... Marengo
Earle Irwin McBryde ..... Wilcox
Thomas Michael McCarroll ..... Florida
Francis Schroeder Montgomery ..... Etowah
Henry Bigham Park ..... Georgia
Douglass Welles Peabody ..... Mobile
Edgar Johnson Pierce ..... Bullock
Daniel Syers Robertson ..... Chambers
Richard Blount Shepard ..... Mobile
Julian Cassius Smith ..... Macon.
George Waddell Snedecor ..... Jefferson
Enrico Alfonso Washington ..... Georgia
Clifford Noble Wallace ..... Elmore
John Osceola Webb ..... Tallapoosa
Walker Dorr Willis ..... Florida
Forney Renfro Yarbrough ..... Georgia
John Eayres Davis Yonge ..... Florida

SOPHOMORE CLASS.

George Whitfield Allen ..... Jefferson
Albert Miner Avery..... Florida
James Victor Blackwell ..... Calhoun
Edward Jefferson Bruister ..... Choctaw
Rush Pearson Burke ..... Montgomery
Thomas Arthur Caddell ..... Etowah
William Julius James Chase..... Georgia
Dudley Chipley ..... Florida
William Hudmon Cooper ..... Lee
Sidney Cornell ..... Jefferson
Walter Thomas Credille ..... Georgia
Charles Sanders Culver ..... Lee
Howard Ellis Davis ..... Mobile
William Watson Davis ..... Mobile
William Wert Dinsmore ..... Morgan
Thomas Joseph Dowdell ..... Montgomery
Isaac Ball Feagin ..... Bullock
†William Eugene Finch..... Florida
George Bridges Foss ..... Etowah
Charles Belshaw Goldthwaite..... Pike
William Lanier Halsey ..... Madison
Millard Harwell ..... Lee
Earnest Cecil Haynie ..... Lee
Bell George Hazard ..... Calhoun
Henry Hiden ..... Jefferson
George Bloise Hill ..... Talladega
William Hill ..... Etowah
Alexander Grice Horn ..... Sumter
John David Hudson ..... Lee
James Daughtry Hudson ..... Georgia
Frank Edward Hunt ..... Jefferson
†Ira LaFayette Jordan..... Bullock.

†Not in full standing.

William George Karnathan ..... Choctaw
Roy Kauffman ..... Mobile
Walter Joseph Knight ..... Mobile
John Fulton Lanier ..... Madison
Carl Lay ..... Etowah
George Duncan Lesesne ..... Mobile
Percy McLean Marshall ..... Georgia
Winfield Scott Martin ..... Mississippi
John Van Valkenburg Matthews..... Madison
Thomas Hatcher Matson ..... Talladega
†Ernest Lynnwood Mayberry.....Macon
Allen Davis McLain ..... Lee
Robert Peyton Mims..... Jefferson
John Harris Mitchell ..... Georgia
William Pitman Moon ..... Coosa
Thomas William Morgan.....Jefferson
James Porter Paterson ..... Montgomery
Christopher Henderson Pinson ..... Sumter
†Albert Wellman Pratt ..... Madison
David Philips Pruett ..... Bullock
Wallace Powers Pruitt ..... Lowndes
George Daniel Randle ..... Jefferson
James Henry Randle ..... Bullock
John Patrick Rembert ..... Mississippi
Paul Rigney ..... Madison
William Richard Rison ..... Madison
†Roy Gustavus Rhodes.....Marengo
Tod Hewitt Roberts.....Jefferson
William Watson Rutland ..... Chambers
Clifford Philip Rutledge ..... Lee
Hans Schmidt ..... Jefferson
Edmund Rhett Taber ..... Montgomery
Edward Taylor ..... Marengo
Louis Earle Thornton ..... Florida

† Not in full standing.

William Lawson Thornton ..... Talladega
James Feagin Tompkins ..... Lee
Filo Harris Turner ..... Florida
William Micou Turnley ..... Elmore
Ivy Whitson Walker ..... Colbert
Joseph Dorrah Walker ..... Jefferson
Walter Harry Wiley ..... Pike
Ira Dateman Williams..... Elmore
Henry Mathews Yonge ..... Florida

FRESHMAN CLASS.

†William Nevin Adkins ..... Georgia
Henry Alexander Allison ..... Sumter
William Leroy Alston ..... South Carolina
Frank Gordon Bell .... Lowndes
†William Henry Bell ..... Lowndes
†Nathan Arnold Beringer ..... Barbour
Irby Boyd..... Pike
Jefferson Edward Brown ..... Pike
Borden Montgomery Campbell..... Eutaw
Julian Sidney Chambers ..... Montgomery
Alan Armstead Chester ..... New York
James Henderson Childs ..... Georgia
William Lawrence Dumas ..... Mobile
Earlie Roy Emrick..... Jefferson
Frank Trimble Evans ..... Georgia
Clarence Evelyne Field ..... Jefferson
Joseph Cochrane Franklin ..... Bullock
Frederick Emanuel Geïbel ..... Montgomery
Walter Summerville Going ..... Jefferson
James Buchanan Green..... Crenshaw
Elmus Knowles Hanby..... Jefferson
Walter Leonidas Harwell ..... Lee
Guy David Hawkins ..... Jefferson

† Not in full standing.

†Clay Irby Hudson ..... Lee
Robert Walter Huey ..... Jefferson
Charles Jefferson Jackson..... Montgomery
Max Gordon Jepson ..... South Carolina
Arthur Dean Jones ..... Pike
Allen Green Jones ..... Dallas
Chauncey Smith Joseph ..... Montgomery
Thomas Jefferson Killebrew ..... Dale
Edward Philip Lacey ..... Jefferson
Tracy Lay ..... Etowah
Francis Lyon ..... Lowndes
Thomas VanRensaler Matthews ..... Calhoun
Isaac Sadler McAdory ..... Jefferson
John William McConnell ..... Jefferson
John McDuffie ..... Monroe
Henry McDonnell ..... Madison
Thomas Pettus McElderry ..... Talladega
William Monroe Meredith ..... Green
Edward Adolphus Miles ..... Mobile
Frederick Shealy Middleton ..... Chambers
Lee Penn Montgomery ..... Lee
Andrew Blair Nelson ..... Walker
Fenton Forest Newman ..... Talladega
Forney Renfro ..... Lee
Thomas Andrew Riley ..... Jefferson
Richard Hoskins Roberts..... Sumter
James Lon Robinson ..... Jefferson
Charles McPherson Rogers ..... Sumter
Oscar Early Rutland ..... Lee
John Van Ryan ..... Madison
Joseph McMurray Seabrook..... Talladega
James Emmet Seale ..... Sumter
Frederick Samuel Shepherd.....Tennessee

† Not in full standing.

William Martin Shepard ..... Mobile
Berner Leigh Shi ..... Georgia
Washington Irving Shi ..... Georgia
Solomon Kauffman Simon ..... Marengo
Philip Ware Smith ..... Chambers
†John Deal Steele ..... Greene
Paul Stewart ..... Jefferson
John Randolph St. John ..... Mobile
Henry Jefferson Sullivan ..... Washington
†Benjamin Walton Taylor.....Jefferson
Albert Lee Thomas ..... Lee
John Walker Wakefield ..... Talladega
William Francis Ward ..... Lee
Thornton Albert Ward ..... Lee
Fletcher Peavy Whatley ..... Lee
George Traylor Williamson ..... Lee
John Mayer Wilson ..... Clark
William Mason Wilson ..... Etowah
John Washington Wood ..... Jefferson

SPECIAL AND IRREGULAR STUDENTS.

Abbreviations: Ph—Pharmacy; E. & M. E.—Electrical and Mechanical Engineering; C.—Chemistry; Ag.—Agriculture; C. E.—Civil Engineering; M. A.—Mechanic Arts.

NAME.		RESIDENCE.
Charles Pierce Anderson.....	PH.....	Montgomery
William Spaight Anderson.....		Jefferson.
Ralph Calloway Armstrong		Lee
Martin Vanburen Beason		Georgia
Arthur Bernard Beringer.....	PH.....	Barbour
Marshall Leonard Bize		Georgia
Johnson Wilson Black		Mobile
*Moffatt Grier Bonner		Wilcox
William Jones Bonner.....	E. & M. E.....	Wilcox

*Deceased.

† Not in full standing.

Wallace Edward Brewster ..... Georgia
Andrew Henry Buchanan...PH. & VET. S..Montgomery
John Mangum Buchanan.....Lee
Rufus White Butler.....PH.....Lee
Arthur Ernest Carter.....PH.....Shelby
William Hatchett Chandler ..... Montgomery
Willis Gaylord Clark.....E. & M. E.....Mobile
Earl Cline ..... Jefferson
Joseph Henry Corrigan .....M. A..... Florida
Lewis Henry Crumpler .....PH..... Talladega
Francis Roy Daniel ..... Mobile
George Parker Dexter ..... Jefferson
Wiley Frank Dorman ..... Chambers
Woodson Lee Ennis ..... Sumter
Martin Conner Folmar ..... Pike
Ingrahm Barron Foster .....PH..... Perry
Albert Edward Gilbert .....PH..... Clay
John Hunter Goddard .....PH..... Georgia
Alexander Hamilton Green ..... Florida
Edward Putney Guerrant.....AG.....Kentucky
Leslie Murphy Hand .....PH..... Sumter
James Coulson Harper.....C. E.....Mississippi
William Bedwell Harrell .....PH..... Choctaw
Ethel Julia Harwell ..... Lee
Henry Clift Hawkins ..... Lee
Alvis Clift Hawkins ..... Lee
Alvis Perry Henderson ..... Limestone
William Jefferson Hearin ..... Mobile
Mollie Hal Hollifield ..... Lee
William Dana Hubbard ..... Dallas
Elbert Carter Jackson .....PH..... Pike
Mell Frazer Jackson.....PH. & VET. S.....Lee
John Samford Jewett .....PH..... Florida
William Micou Jordan .....PH..... Elmore

Edward Kelly ..... Montgomery
Oscar Jennings Knox .....PH..... Lee
Lottie Everard Lane ..... Lee
Daniel Stacy Martin.....E. & M. E.....Barbour
Robert Murdoch Martin ..... Barbour
Jean Llorca-Marty..... .....Nicaragua
Oliveria Masvidal.....M. A.....Cuba
Christian McDevitt ..... Pennsylvania
Herbert McLeod .....PH..... Pike
Allen Massillon McNeel.....E. & M. E..Montgomery
William Robert Middleton ..... Lowndes
Fern Wood Mitchell ..... Etowah
Martin Theophilus Moody.....PH.....Calhoun
James Crowder Moore .....PH..... Lee
Peter Preer Myhand.....VET. S. & PH.....Lee
Carlyle Nisbet.....E. & M. 5.....Georgia
Louis Milton Noll.....PH.....Tennessee
Sallie Fleming Ordway ..... Tennessee
William Freeman Owens .....PH..... Choctaw
William Burns Paterson.....AG.....Montgomery
Morris Pelham.....E. & M. E.....Calhoun
Israel Pickens .....PH..... Hale
Bolling Reigns Powell.....PH.....Montgomery
Alston Keith Rennie.....PH.....Dallas
Henry Virgil Reid .....PH..... Barbour
Carl Robinson ..... Tallapoosa
Benjamin Riley Sawyer .....PH..... Calhoun
Robert Houston Scruggs .....PH..... Sumter
George Clement Sequeira .....C. E..... Nicaragua
Robert Ware Sistrunk .....PH..... Elmore
Hunter Macon Smith ..... Jefferson
Brady Wilkinson Steele .....PH..... Autauga
Henry Sleeth Stickle .....C. E..... Lauderdale
Roy Lee Thornton .....PH..... Bullock

George Baker Tyson ..... Montgomery
Guy Hanson Upchurch .....PH..... Pickens
Victor Vance ..... Jefferson
Luz Maria Washington ..... Georgia
Judson Franklin Webb .....C. E..... Lee
Walter Rivers Whitman.....M. A.....Lee
Annie Lizzie Wright ..... Lee

SUB-FRESHMAN.

Harry Robert Adams.....Jefferson
Thomas Eaton Alexander.....Marengo
†Robert Lehman Ashurst.....Tallapoosa
Robert Trammell Bagby.....Lee
Marvin Fitzpatrick Boykin .....Lee
Thomas Quincy Bradford.....Marengo
Thomas Cobb Bradford ..... Lee
Hubert Gillespie Brown ..... Pike
†George Washington Bryan.....Crenshaw
James DeRasete Bryant.....Wilcox
Andrew Duke Cameron ..... Macon
Lemuel Jacob Cobb.....Cherokee
Lynn Lewis Conner ..... Macon
Benjamin Peeples Cooper.....Washington
Paul Clifton Croft ..... Etowah
James Louis Edwards ..... Jefferson
James Chester Elmer ..... Mississippi
Edgar Earl Ferrell ..... Eutaw
Benjamin Fitzpatrick ..... Montgomery
Eugene Goldthwaite ..... Pike
James Haynes Gumm ..... Georgia
†Herbert Elwood Hawkins.....Lee
†Clute Bernard Hixon ..... Covington
James Elliott Holt ..... Russell
Charles Edwin Jackson ..... Madison
†Frank Otey Johnson ..... Florida

† Not in full standing.

Claude Bolling Jones ..... Lowndes
Hilery Boston Jones.....Baldwin
Alry Carlisle Jordan ..... Clarke
Thomas Reeves Leavel ..... Greene
†Thomas Edward Long ..... Perry
Darrell Francis Marion ..... Dallas
Joel Angus McGwier ..... Colbert
†Benjamin McMillan ..... Mobile
Jay Frank Morgan ..... Georgia
George Newburgh Montgomery ..... Washington
†Cicero Lewis Nelson.....Baldwin
†Benjamin Peeples ..... Tennessee
†Louis Amos Phillips ..... Colbert
John Henry Powell ..... Lee
†Marshall Gowan Price.....Marengo
Edgar Hill Pritchett ..... Wilcox
Charles Eugene Rhodes ..... Marengo
Willis Autray Riley .....Covington
Joseph Molton Sadler ..... Lowndes
Joseph Luther Selden.....Marengo
†Samuel Homer Thornton.....Pike
William Biggers Tucker ..... Lee
Elbert Fain Webb ..... Cherokee
Thomas Jefferson Webb ..... Cherokee
†James Samuel Webb.....Lee
†Fletcher Gordon Webb.....Lee
Cullen Haddley Wimberly ..... Sumter
Thomas Pelham Winston ..... Lee
Walter Scott Wilson ..... Bullock

† Not in full standing.

SUMMARY.

Graduates	17
Senior Class	61
Junior Class	46
Sophomore Class	75
Freshman Class	75
Special and Irregular Students	83
Total in College Classes	357
Sub-Freshman Class	55
Total	412

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	340	Geology	58
History	208	Civil Engineering	23
French	39	Electrical Engineer'g	55
German	36	Mechanical Engr'g	57
Latin	119	Biology	27
Mental Science	19	Drawing	256
Political Economy	51	Mechanic Arts	260
Mathematics	303	Military Department	381
Chemistry	172	Mineralogy	22
Chemical Laboratory	150	Physical Laboratory	66
Agriculture	116	Physiology	100
Physics	228	Veterinary Science	34
Botany	97	Pharmacy	44
Horticulture	37	Bacteriology	16

RESIDENCE BY STATES.

Alabama	341
Georgia	27
Florida	17
Tennessee	7
Mississippi	5
South Carolina	4
New York	2
Nicaragua	2
Cuba	1
Kentucky	1
Pennsylvania	1
Virginia	1
Texas	1
Minnesota	1
Missouri	1
Total	412

MILITARY ORGANIZATION,

1900-1901.

President.

W. L. BROUN.

Commandant.

COL. B. S. PATRICK.

Surgeon.

J. H. DRAKE.

Battalion Staff.

Cadet Captain J. D. FOY, Assistant to Commandant.
Cadet First Lieutenant J. B. POWELL, Adjutant.
Cadet First Lieutenant G. WHITFIELD, Quartermaster.
Cadet First Lieutenant H. H. Conner, Assistant Adjutant.
Cadet Sergeant W. D. WILLIS, Sergeant Major.
Cadet Sergeant J. B. GARBER, Quartermaster Sergeant.

Cadet Captains.

1. S. H. Roberts,
2. A. F. Jackson,
3. M. S. Sloan,
4. E. H. Wills.

Cadet First Lieutenants.

1. M. H. Moore,
2. W. B. McGehee,
3. W. L. Greene,
4. M. C. Turpin,
5. B. B. Meriwether,
6. R. T. Arnold,
7. D. T. Parker,
8. J. T. Letcher.

Cadet Second Lieutenants.

1. E. S. Killebrew,
2. W. R. Lancaster,
3. W. H. Eagar.

Cadet First Sergeants.

1. J. E. D. Yonge,
2. J. A. Kyser,
3. J. D. Elliott,
4. W. M. Askew.

Cadet Sergeants.

1. G. W. Snedecor,
2. C. A. Collins,
3. W. C. Coles,
4. R. B. Shepard,
5. H. B. Park,
6. D. W. Peabody,
7. R. G. Dawson, (Color Sergeant.)
8. J. D. Farley,
9. F. J. Houston,
10. M. Ketchum,
11. M. Ellis,
12. E. L. Carroll,
13. M. J. Lide,
14. J. O. Webb,
15. T. M. McCarroll,
16. W. B. Hamilton,
17. C. E. Feagin,
18. D. T. Herndon.

207893

Cadet Corporals.

1. W. J. Knight,
2. H. E. Davis,
3. W. W. Davis,
4. D. Chipley,
5. H. M. Yonge,
6. T. J. Dowdell,
7. A. M. Avery,
8. T. H. Matson,
9. L. E. Thornton,
10. P. M. Marshall,
11. W. H. Wiley,
12. W. W. Rutland,
13. J. H. Mitchell,
14. W. L. Thornton,
15. F. E. Hunt,
16. W. L. Halsey,
17. E. Taylor.

THE A. P. I. CADET BAND.

M. THOS. FULLAN, Bandmaster.

L. STERNFELD, Principal Musician.

A. M. Avery,
R. C. Armstrong,
F. C. Atkinson,
N. A. Beringer,
I. Boyd,
V. R. Emrick,
M. Ellis,
G. B. Foss,
A. R. Gray,
M. Harwell,
W. L. Harwell,
J. C. Harper,
I. L. Jordan,
M. D. Kahn,
C. Lay,
G. N. Montgomery,
A. B. Nelson,
E. J. Pierce,
G. Sequiera,
H. E. Werner,

E. J. CARROLL, Drum Major.

Cadets of the graduating class who were reported to the Adjutant General, U. S. Army, for publication in the "Official Army Register" as having ranked highest in the Military Department:

1889.
A. St. Dunstan,
B. H. Crenshaw,
A J. Burr.

1890.
F. D. Milstead,
J. W. Bivins,
G. W. Emory.

1891
L. E. Baker,
C. C. Johnson,
F. J. Bivins.

1892.
H. F. Dobbin,
A. L. Jones,
C. L. Brown.

1893.
Joel Dumas,
C. H. Smith,
J. F. Webb.

1894.
C. S. Andrews,
P. P. McKeown,
R. T. Dorsey.

1895.
S. L. Coleman,
H. H. Smith,
L. B. Gammon.

1896.
A. L. Alexander,
W. L. Fleming,
W. M. Williams.

1897.
P. G. Clark,
G. M. Holley,
G. N. Mitcham.

1898.
A. H. Clark,
A. McB. Ransom,
Jno. Haralson.

1899.
I. F. McDonnell,
A. H. Feagin,
T. W. Wert.

1900.
E. M. Mason,
H. P. Powell,
C. W. Nixon.

REQUIREMENTS FOR ADMISSION.

All applicants for admission should present testimonials of good moral character, and those who come from other colleges must present certificates of honorable discharge.

To enter the freshman class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography and History of the United States.

2. English—(a) English grammar as contained in any standard text. (b) An examination upon sentences containing incorrect English. (c) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar, and division into paragraphs.

(a) *Reading.* The composition in 1901 will be upon subjects drawn from one or more of the following works in English Literature: (1) Hughes's *Tom Brown at Rugby;* (2) Southey's *Life of Nelson;* (3) Shakespeare's *Julius Caesar;* (4) Longfellow's *Evangeline;* (5) Scott's *Ivanhoe;* (6) Shakespeare's *Merchant of Venice;* (7) Irving's *Sketch Book;* (8) Macaulay's *Essay on Milton;* (9) Scott's *Marmion;* (10) Dickens's *David Copperfield.*

The candidate will be required to present evidence of a general knowledge of the subject matter, and to answer simple questions on the lives of the authors. This part of the examination is intended to test only a general knowledge of the substance of the books.

(b) *Study and Practice.* This part of the examination presupposes the thorough study of the style of the work, and will be upon *Julius Cæsar* and the *Essay on Milton.*

Preparation and examination on these works will be necessary before the student is classed as regular in any course.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers; the metric system; percentage, including interest and discount; proportion. (b) Algebra to quadratic equations; especial preparation is urged in *fundamental operations, factoring, multiples, divisors* and *fractions;* one book of geometry.

4. Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Cæsar, in addition to the above subjects.

In pronouncing Latin it is recommended that $\bar{a}$ be pronounced as in *father*, $\breve{a}$ as the $\bar{a}$ in *Cuba;* $\bar{e}$ as in *prey*. $\breve{e}$ as in *men;* $\bar{i}$ as in *machine*, $\breve{i}$ as in *cigar;* $\bar{o}$ as in *old*, $\breve{o}$ as in *obey;* $\bar{u}$ as in *rule*, $\breve{u}$ as in *full;* j as y in *yard;* c always as k in *king;* g always as g in *get.*

For admission to the higher classes, students should be prepared to stand a satisfactory examination in all of the studies of the lower classes, as shown in the course of study. Students applying for admission to the sophomore class will be examined in mathematics through quadratic equations and logarithms in Algebra, and on seven books in geometry. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on those subjects.

It is absolutely essential that students, who hope to succeed, should be well grounded in Arithmetic, Algebra, and Geometry.

A working knowledge of the metric system should also be obtained.

ADMISSION ON CERTIFICATE.

Applicants will be admitted without examination on presenting a certificate from any of the CERTIFICATE SCHOOLS named herein.

The following educational institutions having made application to be correlated to this College and having presented an approved course of study, are hereby declared to be CERTIFICATE SCHOOLS, and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the fresh-"man class *without examination* upon the certificate of the presi-"dent or principal showing definitely that such students have com-"pleted satisfactorily all the studies required for admission, as "stated in the catalogue and are otherwise admissible."

The privilege of admitting students to the Sophomore class on certificate will be granted only to those approved schools that have had a continuous existence for five years or more and have previously had pupils admitted to that class without conditions.

The following form of certificate will be used:

I hereby certify that A....., B.....has attended the (*name the school or academy*) for.....years and has studied the following subjects:

in History.....(*name the books*)
in English.....(*name the books*)
in Algebra.....(*state amount accomplished*)
in Geometry.....(*state amount accomplished*)
in Latin.....(*state books read*)

and having passed a satisfactory examination on these subjects as required in the Catalogue for admission to the.....class, I recommend him for the same.

Admission by certificate is regarded as provisional.

That is, though admitted to the class for which the certificate calls, the applicant may be required to take a special examination in any subject in which his preparation proves unsatisfactory, or, after a fair trial, he may be dropped to a lower class, if he fails to maintain standing in the class to which he may be admitted.

CERTIFICATE SCHOOLS.

University Military School, Mobile.....J. D. Wright.
Verner Military Institute, Tuscaloosa.....W. H. Verner.
University School, Montgomery.....J. M. Starke.
Mt. Willing High School, Mt. Willing.....J. Knight.
State Normal School, Jacksonville.....C. W. Daugette.
Male Academy, Huntsville.....F. Puryear.
Furman Academy, Livingston.....L. A. Cockrell.
High School, Opelika.....J. M. Smallwood.
University Military School, Clanton.....E. Y. McMorries.
Eighth District Agricultural School, Athens.....M. K. Clements.
Sixth District Agricultural School, Hamilton.....G. A. Holley.
Eutaw Male Academy, Eutaw.....H. C. Horton.
Boy's High School, Anniston.....H. C. Gunnels.
Taylor's School, Birmingham.....W. P. Taylor.
University High School, Birmingham...I. J. White, M. B. Dickinson.
Fourth District Agricultural School, Sylacauga.....A. G. Seay.
Gaylesville High School.....John R. Ray.
Carrollton Academy.....L. V. Rosser.
Ninth District Agricultural School, Blountsville.....J. A. B. Lovett.
Gadsden High School.....I. W. Hill.
Boyd High School, Ramer.....B. H. Boyd.
Dadeville High School.....J. D. Lane.
Prattville High School.....A. W. Holstun.
Eufaula High School.....F. L. McCoy.
Union Springs High School.....J. M. Sanders.
Montgomery High School.....C. L. Floyd.
Calera Academy.....C. C. Slaton.
Southern Agricultural School, Abbeville.....J. B. Murphy.
Barnes's School, Montgomery.....E. R. Barnes.
Jackson Agricultural School.....J. B. Murphy.
Spring Lake School.....W. C. Griggs.
West Alabama Agricultural School, Hamilton.....G. A. Holly.

ADMISSION OF YOUNG WOMEN.

The privilege of becoming students in this college is granted by the Trustees to young women of mature mind and character, on the following conditions:

The applicant must be seventeen years of age, and if a candidate for a degree, be able to pass a satisfactory examination in each of the four subjects as named below.

If the applicant is a candidate for admission as a special or irregular student, she must be able to pass a satisfactory examination in two of the subjects named, and may be admitted at an age less than seventeen, with a resident of Auburn acting as guardian, if application is approved by the Faculty.

(a) In English—Proficiency in spelling and punctuation; Grammar (Lockwood-Whitney); Rhetoric (Lockwood's Lessons and Genung's Outlines of Rhetoric); Scudder's Masterpieces of American Literature; Syle's From Milton to Tennyson.

For requirements in reading in literature see page 41.

(b) In History—Macy's Our Government; Chambers's History of the United States; Myers's General History.

(c) In Mathematics—Arithmetic; Algebra, including quadratic equations, logarithms and series; Plane and Solid Geometry; Plane and Analytic Trigonometry, as in Wentworth.

(d) In Latin—Grammar, including the forms and syntax; Jones's Latin Prose Composition; translation of selections from Cæsar, Nepos, Virgil, Cicero's Orations, Cicero's Letters, or the equivalent.

The equivalents of these subjects, as in above text-books, may be substituted.

Botany will constitute a required part of the general course for young women who are candidates for a degree.

When admitted, upon complying with the conditions above stated, they may enter upon the study of any subject taught in the College and join any class, for which, upon examination, they may be found qualified. The only condition imposed will be that they engage in earnest study, and attend the exercises regularly. They will board in the town with private families and attend college only at the hours of their exercises.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 11th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the freshman class are admitted to the sub-college department, provided they are fifteen years of age, and are found after examination qualified to profit by the instruction given. Those who, after admission, are inattentive to their studies, and neglectful of their duties will be required to withdraw, but those who are studious and make sufficient progress will be advanced to full admission to the Freshman class when they are qualified to pass satisfactorily the required examinations.

Students, upon their arrival at Auburn, will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of electing studies in the lower classes is not granted to young students nor to their parents.

The Faculty will assign a student, on admission, to that class of a prescribed course for which he is qualified; and for special reasons, approved by the Faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age that are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study for which they may be qualified.

For an applicant to enter upon the study of Electrical and Mechanical Engineering as a special or irregular student, he must have studied Algebra through quadratics and logarithms, plane geometry, and plane trigonometry.

The professor in charge of a department will decide by examination whether a special student is prepared for admission to his class.

A student who does not take all the studies in a class of one of the degree courses, as prescribed in the catalogue, and is permitted to take an irregular course, will be assigned to a member of the Faculty, who will act as his special adviser, and when his course of study has been approved by the Faculty no other change will be permitted without the endorsement of his adviser.

Regular students who fail to pass satisfactory final examinations in any one study become irregular students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students, candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

ADMISSION TO HIGHER CLASSES.

At the beginning of each term a student in the sub-freshman class may, on application approved by the Faculty, be examined for admission to the freshman class in history, english, mathematics, and be admitted to the freshman class in that subject only.

Students who have completed satisfactorily all the studies of the sophomore class, as prescribed in the catalogue, in any one of the regular degree courses, can enter, without condition, the junior class in any course, except in the general course, or the course in pharmacy, in which Latin is required.

Students who are admitted to the junior class from other institutions, on examination in English, Latin, and mathematics, and who have not completed all the studies of the sophomore class, in order to graduate, will be required to complete the course in chemistry and history as taught in the sophomore class.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical, and Natural Sciences, with their applications; Agriculture; Biology; Mechanics, Astronomy, Mathematics; Drawing; Civil, Electrical, and Mechanical Engineering; Physiology and Veterinary Science; Pharmacy; English, French, German, and Latin Languages; History, Political Economy; Mental and Moral Sciences.

These studies are arranged in regular courses so as to offer a liberal and practical education as a preparation for the active pursuits of life.

There are five degree courses for undergraduates, each leading to the degree of Bachelor of Science, (B. Sc.) and requiring four years for its completion.

I. COURSE IN CHEMISTRY AND AGRICULTURE.

II. COURSE IN CIVIL ENGINEERING.

III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

IV. GENERAL COURSE.

V. COURSE IN PHARMACY.

There are also three partial courses, each requiring two years for its completion:

VI. TWO-YEAR COURSE IN AGRICULTURE.

VII. TWO-YEAR COURSE IN MECHANIC ARTS.

VIII. TWO-YEAR COURSE IN PHARMACY.

Course 1. includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture or chemical pursuits.

Course II. includes the principles and applications of the sciences that directly relate to civil engineering.

and is adapted to those who expect to enter that profession.

Course III. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged for the profession of electrical and mechanical engineering.

Course IV. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching or in some commercial or professional business.

Course V. includes, besides the general education of course IV. in the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Courses VI. VII. VIII. have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, will be awarded a certificate of proficiency in said subject.

Students who complete either of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every candidate for a degree will be required to stand this special examination during the second *term* of the Senior year.

Declamations and themes or orations are required of all regular students pursuing courses leading to a degree.

POST-GRADUATE COURSES.

A more extended post-graduate course of study may be taken by a graduate of this College or of any other institution of equal grade. The completion of a course which leads to a post-graduate degree of Master of Science requires one year's residence at the College, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the Faculty.

The candidate must also present to the Faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination, at the close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the Faculty.

The subject of the thesis must be submitted to the Faculty for approval prior to January 1st, and the thesis given to the professor by May 1st.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the general regulations as other students, and pay the same fees, but are exempt from all military duty.

The following courses are prescribed for the degree named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the Faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and Chemistry.

3. *Master of Science in Civil Engineering.*—Civil Engineering, Mathematics, Analytical Mechanics.

4. *Master of Science in Electrical and Mechanical Engineering.*—Electrical Engineering, Mechanical Engineering.

5. *Master of Science in Mining Engineering.*—Students who have received the degree of B. Sc. in engineering, civil, or electrical and mechanical, or who have prosecuted an equivalent course of study, can enter upon a special course of mining engineering, which includes the following subjects of study:

Industrial Chemistry, Analytic Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, with practical work in the field, Mining Machinery with the applications of steam and electricity to the various operations connected with the exploitation of mines.

The student, if a candidate for a degree, will also be required to prosecute the necessary studies in that course of engineering in which he has not graduated. This course of study will be under the charge of the professors in the different engineering departments the professor of Chemistry, and the professor of Mineralogy and Geology.

Special Students in Post-Senior Studies.—Students who are not graduates, but are qualified in special subjects to prosecute post-senior studies, and desire to prepare themselves more thoroughly for professional or special work in any one of the departments of engineering, in chemistry or pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the Faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given the same year.

PROFESSIONAL DEGREES.

The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Mining Engineer, or Pharmaceutical Chemist will be given two years after receiving the degree of Master of Science, provided the intervening time of two years has been spent in a responsible position in practical engineering work in that department in which he received the degree of Master of Science, or in practical pharmacy, and an approved thesis is submitted to the Faculty, with a report of the character of the work done.

SPECIAL ONE-YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of scientific agriculture.

PHOTOGRAPHY.

During the session there will be given by Professor Mell a course of twelve lectures on photography. This course will be elective, and the instruction will be open to any student that may desire to learn how to make pictures. It will be necessary for each student to provide himself with an outfit that will cost from $11.50 to $16.00.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this Institute, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CHEMISTRY.
II. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.
III. AGRICULTURE.
IV. BOTANY.
V. MINERALOGY.
VI. BIOLOGY.
VII. TECHNICAL DRAWING.
VIII. MECHANIC ARTS.
IX. PHYSICS.
X. ELECTRICAL ENGINEERING.
XI. MECHANICAL ENGINEERING.
XII. PHYSIOLOGY AND VETERINARY SCIENCE.
XIII. PHARMACY.

NOTE.—Special work in English or History may be taken by students in the general course as a substitute for laboratory work.

I.—COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
3. Drawing.	3. Drawing.	3. Drawing.
2. Physiology.	2. Physiology.	2. Physiology.
2. Chemical Laboratory.	2. Chemical Laboratory.	2. Chemical Laboratory.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
4. Botany. (Laboratory).	4. Botany. (Laboratory).	4. Botany (Laboratory).
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Laboratory.	9. Chemical Laboratory.	9. Chemical Laboratory.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
2. Clinical Lab'y.	2. Clinical Laboratory.	2. Clinical Laboratory.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy (c).	2. Political Economy.
2. Mental Science (d).	2. Mental Science (d).	2. Mental Science (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
5. Biology.	5. Biology.	5. Biology.
2. Agricultural Chem't'y.	2. Agricultural Chem't'y.	2. Agricultural Chem't'y.
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Laboratory.	9. Chemical Laboratory.	9. Chemical Laboratory.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
2. Clinical Laboratory.	2. Clinical Laboratory.	2. Clinical Laboratory.

(a) Begins March 1st.
(b) Also Practical Agriculture.
(c) Begins Feb. 15th.
(d) French or German may be substituted.

II.—COURSE IN CIVIL ENGINEERING.

The numerals opposite the subjects indicate the number of hours perweek.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term:*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6 Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture (b).	2. Agriculture (b).	2. Agriculture (b).
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Laboratory.	2. Chemical Laboratory.	2. Chemical Laboratory.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French, or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y, Mech. Arts (c).	6. Lab'y, Mech. Arts (c).	6. Lab. Mech. Arts (c).
1. Field Work, Engin'g.	1. Field Work, Engin'g.	1. Field Work, Engin'g.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term	*Second Term.*	*Third Term.*
2. English Literat'e (d).	2. Political Economy (d).	2. Political Economy (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.

(a) Begins March 1st.
(b) For Agriculture may be substituted Physical Laboratory.
(c) Or Mineralogy.
(d) For Eng. Lit and Pol. Econ. may be substituted French or German.

5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
4. Mech. Eng., Lab'y.	4. Mech. Eng., Lab'y.	4. Mech. Eng., Lab'y.
Field Work, Engin'g.	Field Work, Engin'g.	Field Work, Engin'g.

III.—COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

In freshman and sophomore classes the same studies are prescribed as in Course II in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French, or German.	3. English, French, or German.	3. English, French, or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
4. Electrical Engin'g.	4. Electrical Engin'g.	4. Electrical Engin'g,
3. Mech. Engineering.	3. Mech. Engineering.	3. Mech. Engineering.
4. Mechanical Drawing.	4. Mechanical Drawing.	4. Mechanical Drawing.
4. Electrical Lab'y.	4. Electrical Lab'y.	4. Electrical Lab'y.
6. Mech, Art Lab'y.	6. Mech. Art Lab'y.	6. Mech. Art Lab'y.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. Eng. Literature (a).	2. Political Econo'y (a).	2. Political Econo'y (a).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	3. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Electrical Engin'g.	5. Electrical Engin'g.	5. Electrical Engin'g.
5. Mech. Engineering.	5. Mech. Engineering.	5. Mech. Engineering.
2. Electrical Designing.	2. Electrical Designing.	2. Electrical Designing.
6. Electrical Lab'y.	6. Electrical Lab'y.	6. Electrical Lab'y.
4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.
1. Military Science.	1. Military Science.	1. Military Science.

(a) Freneh or German may be substituted.

IV.—GENERAL COURSE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
3. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	2. Agriculture.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	3. Drawing.
3. Military Drill.	3. Military Drill.	6. Mechanic Art Lab'y.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Laboratory.	2. Chemical Laboratory.	2. Chemical Laboratory
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
3. Latin.	3. Latin.	3. Latin.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Laboratory Work (b).	6. Laboratory Work (b).	6. Laboratory Work (b).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English.	2. Political Economy (c).	2. Political Economy.
2. Mental Science.	2. Mental Science.	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science.	1. Military Science.
6. Laboratory Work (b).	6. Laboratory Work (b).	6. Laboratory Work (b).

(a) Begins March 1st.

(b) The student may elect the laboratory of any department for which he may be qualified.

(c) Begins February 15th.

V.—COURSE IN PHARMACY.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	2. English.	3. English.
2. History.	2. History.	3. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Laboratory.	2. Chemical Laboratory.	2. Chemical Laboratary.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. Physics.	3. Physics.	3. Physics.
6. Chemical Laboratory.	6. Chemical Laboratory.	6. Chemical Laboratory.
4. Botanical Laboratory.	4. Botanical Laboratory.	4. Botanical Laboratory.
3. English (b).	3. English (b).	3. English (b).
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
9. Pharmaceutical Lab'y.	9. Pharmaceutical Lab'y.	9. Pharmaceutical Lab'y.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Tactics.	1. Military Tactics.	1. Militarv Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Biology.	5. Biology.	3. Biology.
6. Chemical Laboratory.	6. Chemical Laboratory.	6. Toxicology.
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
8. Pharmaceutical Lab'y.	8. Pharmaceutical Lab'y.	8. Pharmaceutical Lab'y.
5. Pharmacognosy.	5. Pharmacognosy.	5. Pharmacognosy.
2. Military Science.	1. Military Science.	1. Military Science.
3. Materia Medica.	3 Materia Medica.	3. Bacteriology.

(a) Begins March 1st.
(b) French or German may be substituted.

VI.—TWO-YEAR COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	3. Drawing.	3. Drawing.
12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

VII.—TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agricult're.	2. Practical Agricult're.	2. Practical Agricult're.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
4. Agriculture.	4. Agriculture.	4. Agriculture.
2. Physiology.	2. Physiology.	2. Physiology.
2. Veterinary Science.	2. Veterinary Science	2. Veterinary Science.
12. Practical Agricult're.	12. Practical Agricult're.	12. Practical Agricult're
3. Military Drill.	3. Military Drill.	3. Military Drill.

VIII.—TWO-YEAR COURSE IN PHARMACY.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. English.	3. English.	3. Botany.
2. Physiology.	2. Physiology.	2. Physiology.
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
6. Mech. Art Lab'y. (a)	6. Mech. Art Lab'y. (a)	6. Mech. Art Lab'y. (a)
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
5. Pharmacognosy.	5. Pharmacognosy.	5. Pharmacognosy.
8. Pharmaceutical Lab.	8. Pharmaceutical Lab.	8. Pharmaceutical Lab.
6. Chemical Lab'y.	6. Chemical Lab'y.	7. Toxicology.
3. Materia Medica.	3. Materia Medica.	3. Bacteriology.
6. Botanical Lab'y.	6. Botanical Lab'y.	6. Botanical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) or Physical Laboratory.

SCHEDULE OF EXERCISES.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
I.	4. Algebra.	3. Agriculture.	4. Algebra.	4. Geometry.	4. Algebra.	
	3. Latin.	4. Geometry.	3. Latin.	3. Latin.	3. Latin.	
8–9		3. Latin.		2. German.		Exercises in Elocution.
	1 and 2 Drawing.	2. German.	1 and 2 Drawing.	1 and 2 Drawing.	1 and 2 Drawing.	
	1. Elec. Engine'r'g	1 and 2 Drawing.	1. Vet. Science.	2. Botany.	1. Veterinary Sci.	
	2. Mec. Engine'r'g	2. Botany.	1. Elec. Engine'r'g	1. Mental Science.	1. Elec. Engine'r'g	
	1. Biology.	1. Elec. Engine'r'g	1. German.	1. Elec. Engine'r'g	1. German.	
	1. German.	1. Mental Science.	2. Mech'l Eng.	2. Mech'l Eng.		
II.	4. English.	4. History.	4. English.	4. History.	4. English.	
	3. Chemistry.	3. Physiology.	3. Chemistry.	3. Agriculture.	3. Chemistry.	Military Drill.
	2. Civ. Engineer'g.	2. Civ. Engine'r'g.	2. Civ. Engineer'g.	2. Civ. Engine'r'g.	2. Civ. Engine'r'g.	
9–10	2. Latin.	2. Botany.	2. Latin.	2. Botany.	2. Latin.	
	1. Calculus.	2. Elec. Engine'r'g	1. Calculus.	2. Elec. Engine'r'g	2. Mech'l Drawing	
	1. Biology.	1. Chemistry.	2. Vet. Science.	1. Chemistry.	1. Calculus.	
	2. Elec. Engine'r'g	1. French.	2. Elec. Engine'r'g	1. French.	2. Vet. Science.	
III.		1. Machine Desi'g.		1. Machine Desi'g.		
	3. English.	3. History (1, 2).	3. English.	3. History (1, 2).	3. English.	Mechanic Arts.
	2. Physics.	3. Botany (2, 3).		3. Botany (2, 3).	2. Physics. *	Chemical Laboratory.
		1. Biology.	2. Physics.	1. Civ. Engin'r'g.		Electrical Laboratory.
10–11	1. Civ. Engine'r'g.	1. Civ. Engineer'g	1. Latin.	4. English.	1. Civ. Engineer'g.	Physical Laboratory.
	1. Biology.	4. English.	1. Civ. Engineer'g	1. Mech. Engin'r'g		Veterinary Clinics.
	1. Latin.	1. Mec. Engine'r'g	1. Biology.	2. French. *	4. History (3).	Biological Laboratory.
	1. Mec. Engine'r'g	2. French.	1. Mech. Engin'r'g		1. Mech. Engin'r'g	Field Engineering.
		2. Mec. Drawing.				

SCHEDULE OF EXERCISES—Continued.

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
IV. 11–12	4. Physics (1, 2). 4. Agricultnre (3). 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. English (1, 2 . 1. Pol. Econ. (2,3). 4. Mechanic Arts.	4. Latin. 3. Drawing. 2. Agriculture. 2. Mathematics. 1. Chemistry. 1. French. 1. Physics.	4. Physics (1, 2). 4. Latin (3). 3. History (1, 2). 3. Botany (2, 3.) 2. Mathematics. 2. Chemistry. 1. English (1, 2). 1. Political Economy (2, 3). 4. Mechanic Arts.	4. Latin. 2. Agriculture. 2. Mathematics. 1. Chemistry. 3. Physiology. 1. French. 1. Physics.	4. Physics (1, 2). 4. Agriculture(3). 4. Latin (1, 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. MilitaryScience 4. Mechanic Arts.	3. Mechanic Arts. Chemical Laboratory. Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.
V. 12–1	4. Drawing. 3. Mathematics. 2. English. 4. Mechanic Arts. 1. Elec. Designi'g. 1. French.	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 4. Mechanic Arts. 2. German. 1. Elec. Designing 2. Anal. Chemis'ty	3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 4. Mechanic Arts. 1. Elec. Designing. 2. MilitaryTactics	3. Mechanic Arts. Chemical Laboratory. Electrical Laboratory. Physical Laboratory. Veterinary Clinics. Biological Laboratory. Field Engineering.
P.M. VI. VII 2–4	4. Mechanic Arts. 3. Field Work Agr. 1 & 2 Laboratory. Chemistry. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Elec. Lab. Work. Physical Labor'y.	3. Mechanic Arts. 2. Mineralogical Laboratory. Military Drill (*). 1. Mech. Lab'tory. Elec. Lab'y Work. 1 and 2 History.	4. Mechanic Arts. 3. Field Work Agr. 1 & 2 Laboratory, Chem. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Ex'cis. in Elocut'n Elec. Lab. Work. Physical Labor'y.	3. Mechanic Arts. 2. Mineralogical Laboratory. Military Drill (*) 1. Mech. Labor'y. Elec. Lab'y Work. 1 and 2 History.	4. Mechanic Arts. 3. Field Work Agr. 2. French. 1 & 2 Lab. Chem. 1 & 2 Field Work. Engineering. 1 & 2 Mach. Work. Ex'cis. in Elocut'n Elec. Lab. Work. Physical Labor'y.	

Chapel services daily at 7:45 a. m.
Numbers prefixed denote classes—1 denotes senior, 2 junior, etc. Numbers affixed—(1), (2), (3), denote terms.
*From 4:30 to 5:30 p. m.

DEPARTMENTS OF INSTRUCTION.

PHYSICS AND ASTRONOMY.

PROFESSOR DUNSTAN.

ASSISTANT PROFESSOR KYSER.

ASSISTANT JEPSON.

The instruction is given by the recitation from text books and lectures, illustrated by experiments and stereopticon projections.

The following courses are given in this department:

FRESHMAN COURSE.

First and Second Terms. (Three recitations per week). Elementary general physics.

TEXT-BOOK.

Cooley's Physics.

SOPHOMORE LABORATORY COURSE.

This is a laboratory course to follow the Freshman Course in general physics, and is designed, principally, for students who intend following engineering courses.

First Term. (Six hours per week.) (*a*) Simple measurements and design of measuring instruments. (*b*) Elementary graphical statics. (*c*) Forces, moments and work. (*d*) Simple machines and friction (determining mechanical advantages, loss, efficiency, law, etc).

Second Term. (Six hours per week.) (*e*) Pendulum and gravity. (*f*) Elasticity. (*g*) Liquids. (*h*) Density and specific gravity.

Third Term. (Six hours per week.) (*i*) Gases. (*j*) Heat. (*k*) Sound. (*l*) Light.

RECORD-BOOK.

About 100 experiments are selected and are quantitative in nature. Results of experiments are to be entered, in tabular form, together with diagrams, deductions, etc., in a laboratory record book which contains a synopsis of the experiment and deductive questions. At the close of each week this book is criticised and graded according to its accuracy and neatness.

REFERENCE-BOOKS.

Ames & Bliss' Laboratory Manual, Stewart & Gee's Practical Physics, Nichol's Laboratory Manual, Magnus' Mechanics, Glazebrook's Mechanics and Statics.

JUNIOR COURSE.

This is a more advanced course in general physics required of all candidates for a degree.

First Term. (Three recitations per week.) Mechanics of solids, liquids and gases.

Second Term. (Three recitations per week.) Static and dynamic electricity and magnetism.

Third Term. (Three recitations per week.) Sound and heat.

TEXT-BOOK.

Ames' Theory of Physics.

SENIOR COURSE.

First Term. (Two recitations per week.) Light and optical instruments.

Second and Third Terms. (Two recitations per week.) Astronomy.

TEXT-BOOKS.

Ames' Theory of Physics, Young's Astronomy.

POST-GRADUATE COURSE.

Instruction will be given in either analytical mechanics, or selected portions of mathematical physics.

Prerequisite.—Differential and integral caluculus. The department is well equipped with apparatus for illustrating the lectures.

MATHEMATICS.

PROFESSOR SMITH.

ASSOCIATE PROFESSOR CRENSHAW.

INSTRUCTOR PATRICK.

The subjects taught in the different classes in this department are as follows:

FRESHMAN CLASS. Algebra through quadratic equations and series, geometry (seven books Wentworth), original solutions of exercises.

SOPHOMORE CLASS. Algebra completed, solid geometry, plane and spherical trigonometry, surveying, mensuration.

JUNIOR CLASS. Analyticial geometry, descriptive geometry.

SENIOR CLASS. Differential and integral calculus.

Two objects are sought to be attained: First, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given to the sophomore class in farm, town and government land surveying, dividing land, mapping, plotting and computing areas, etc.; also in the theory, adjustment and use of instruments.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

Mensuration includes an extended course in measurements of heights and distances, plane, rectilinear, and curvilinear figures, surfaces and volumes.

The completion of this course, common to all students, lays the foundation for the pure and applied mathematics of the mechanical and engineering courses. Analytical geometry, descriptive geometry, and calculus are pursued in the engineering courses. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of the principles and formulas.



BOTANICAL LABORATORY.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Wentworth's Trigonometry, Davie's Surveying, Wentworth's Analytical Geometry, Faunce's Descriptive Geometry, Taylor's Calculus, Johnson's Differential Equations, Osborne's Problems, Peck's Determinants.

GEOLOGY AND BOTANY.

PROFESSOR MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other natural deposits of minerals in the State. Mineral springs, the origin of ore deposits, and the geological relations of soils are carefully studied.

There is also a course of advanced work in practical geology for post-graduate students. This subject is pursued by applicants for the degrees of master of science and mining engineer.

The junior class in civil engineering studies mineralogy through the entire season. This work consists of a thorough course in blow-pipe analysis of the ordinary minerals, and lectures upon crystallography, with instruction how to measure crystals and determine the physical constants of minerals. An effort is made to familiarize the student with all the economic ores and the rocks entering into the composition of soils.

Botany.—The students of the sophomore class begin the study of botany the first of March, and continue it through the remainder of the session. Careful experiments are conducted in the lecture room explaining the formation and germination of seed, the growth into the

mature plant, and the various functions performed by the plant in its development. Each student is required to keep careful notes illustrated with drawings of the various organs of the plant under examination. A limited amount of work is done in classification and nomenclature.

In the junior class, in the course of chemistry and agriculture, two terms are devoted to systematic and structural botany, and to advanced laboratory work with the microscope in the preparations of specimens showing plant structure; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microscopes of the most improved patterns, and all necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students.

The third term is devoted to the study of the physiology of plants in order to understand the functions of the various organs after completion of the work in the histological laboratory.

FACILITIES FOR WORK.

. *Geology.*—The department is equipped with models of Mount Shasta, the earthquake of 1887 in Japan, glass crystals of teaching crystallography; charts and maps of the geology of America and Europe; Colt's lantern complete with oil, oxy-hydrogen and automatic electric lamps; a large assortment of fine lantern slides representing geological formations in this country and abroad; well equipped mineralogical laboratory for thirty students, supplied with a collection of representative minerals; and models of crystals.

Botany.—The facilities for teaching this subject are as follows: Auzoux's clastic models of seeds and flowers; a large collection of pressed plants of Alabama and other sections mounted and catalogued. There is also a laboratory for practical work in botany equipped with slate-topped tables for twenty students; dissecting and compound microscopes of Zeiss, Leitz, and Bausch & Lomb; projection microscopic apparatus; microtomes by King and Bausch

& Lomb; all the necessary glassware and smaller dissecting instruments required in a well equipped laboratory. The Zeiss compound microscope used by the professor for experiment work in connection with the station is supplied with Abbe's illuminating apparatus, slide changers, Abbe's camera lucida, polarizers, apochromatic objectives (16mm, 8 mm, 4mm, and homogeneous immersion), oculars (2, 3, 8, 12, 18), and photographic eye-piece with micrometer. This laboratory is well lighted with gas and electricity and with a good exposure for ample sunlight.

In connection with the department there is a photographic dark-room and an excellent photographic outfit, consisting of cameras varying in size from 4x5 to 6½x8½ inches; Bausch & Lomb's professional photo-micro camera extending to eight feet; Zeiss's anastigmat photographic lens, 6½x8½, fitted with Bausch & Lomb's diaphragm shutter and Zeiss's wide angle lens, 6½x8½, all mounted in aluminum; Clark's lens fitted with diaphragm shutter; Darlot lens, 4x5; the accessory apparatus and chemicals required for first-class work in photography.

The students have access to the botanical garden where experiments in grass culture and many other plants of interest to the farmer are conducted by the professor.

TEXT-BOOKS.

LeConte's Geology, Tarr's Economic Geology, Dana's Mineralogy, Crosby's Tables for Determining Minerals, Bergen's Botany, Mell's Laboratory Guide, and notes of lectures.

CIVIL ENGINEERING AND DRAWING.

PROFESSOR LANE.

ASSISTANT MARTIN.

The special studies in this department begin in the junior class, and require a good knowledge of algebra, geometry, trigonometry, and analytical mechanics. They are as follows:

Junior Class—Simple, compound, reversed and parabolical curves, turnouts and crossings, leveling, gradients, setting slope stakes, etc.

Special attention will be paid in this class to the location, construction, drainage and maintenance of country roads; and the various pavements and foundations for the same.

Senior Class—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought iron, steel and other metals; limes, cements, mortars and their manufacture; paints and other preservatives; classification of strains and a general mathematical discussion of same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds, their construction and strains determined mathematically and graphically; common roads, their coverings, and location, and construction of railroads; navigable, irrigation and drainage canals; river and seacoast improvements.

Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior Class—Henck's Field Book for Railway Engineers and Byrne's Highway Construction.

Senior Class—Wheeler's Civil Engineering and Von Ott's Graphic Statics.

DRAWING.

All of the students of the freshman and sophomore classes are required to take drawing; but only the students in civil engineering in the junior and senior classes.

The freshman class is taught linear and free-hand drawing. The sophomore class is instructed in the principles of orthographic and isometric projections, shades, shadows, prespective and tinting. In the junior class

the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and tinting; also sketches of tools and machines, plans and elevations and cross-sections of buildings, and blue-prints. The senior class makes topographical drawings and drawings of machines, roofs, bridges, etc., to different scales, and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Freshman Class.—Kitchener's Geometrical Note Book, Thorne's Junior Course in Mechanical Drawing, and Davidson's Model Drawing.

Sophomore Class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior Class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, plates belonging to the college, Keuffel & Esser's Alphabet.

Senior Class.—French, English and American plates belonging to the College, Keuffel & Esser's Alphabet.

ENGLISH AND POLITICAL ECONOMY.

PROFESSOR THACH.

PROFESSOR WIATT.

ASSISTANT SCROGGS.

ASSISTANT HAROLD.

OBJECTS AND METHODS.

In this department the students pursue a systematic course in the English language and literature.

Language is the avenue of approach to all knowledge; the interpretation of words is the fundamental process in education of whatsoever kind. A full course in Eng-

lish is, therefore, considered especially important in the technical courses of study that do not include the ancient classics. Accordingly, the course of English is continued throughout the four years of the college curriculum, three hours a week, and is made obligatory upon all students, with the exception of those pursuing the first two years of the course in Latin. In this extended drill in the grammar and literature of the English language, the endeavor is made to afford a training somewhat equivalent to the ordinary course in the classical languages.

In view of the ill preparation in languages, especially in their mother tongue, exhibited by many of the candidates for admission to the freshman class, it is deemed advisable, for the sake of honest work, to devote a portion of the first year to grounding such students in the principles of grammar.

Especial attention is given to the study of the writings themselves of leading English authors, since direct contact with literature is considered more profitable than information merely *about* literature.

All students before classed as regular in any course leading to a degree must conform to all the requirements in English for admission as set forth on page 41.

For requirements as to thesis and as to proficiency in English for certificates and degrees see pages 49 and 109.

Declamation and themes (or orations) are required of *all regular* students. For details see below.

COURSES OF STUDY.

Freshman Class—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied; study of American authors; Irving, Hawthorne, Holmes, Poe, Bryant, Longfellow.

Swinton's English Grammar, Lockwood's Rhetoric, Kellogg & Reed's English Language.

Sophomore Class.—Three hours a week; study of style, analysis of selections of prose and poetry; frequent essays on historic and literary themes.

G. R. Carpenter's Rhetoric, Genung's Rhetorical Analysis, Syle's From Milton to Tennyson.

Junior Class.—Three hours a week; lectures on the history of English literature, critical study of English classics, essays.

Pancoast's History of English Literature; Pancoast's Standard English Poems, Macaulay, Carlyle, DeQuincey, etc.

Senior Class.—Two hours a week, first term. Principles of Criticism, Shakepeare's Julius Cæsar, Hamlet, etc., Dowden's Shakespeare, etc.

THEMES AND ORATIONS.

Theory without practice is as fruitless in the study of English as in any other department of study. Practical work is indispensable to the successful teaching of English.

Besides numerous brief papers illustrative of the subject matter of the text-books, set themes or orations are *required of all students*:—For the freshman class, *ten* themes a year; *ten* for the sophomore; for the senior and junior classes, *three* orations each.

DECLAMATION.

The old practice of committing pieces to memory for "speaking" is cultivated as a means, both of training in the art of thinking on the feet, and of storing the mind with the diction of finished specimens of English style.

The sophomore class is heard weekly throughout the year in sections of ten, once for an hour and a half in rehearsal, afterwards in the study-hall before the body of students.

The senior and junior classes also deliver their orations in public.

PHILOSOPHY AND POLITICAL ECONOMY.

The senior class pursues the study of intellectual science, twice a week, through the year; and political economy twice a week, during the last two terms. The instruction in this department is by lectures in combination with text-books.

Intellectual Science.—Psychology defined. Value in relation to moral culture, education and Natural Sciences. The relation of the soul to matter. The arguments of the Materialist. Counter arguments. The Faculties of the Soul. The nature of Consciousness. Sense Perception. Fancy. Imagination. Nature of Conceptions.

Language. Judgment. Reasoning. Deduction. Induction, etc. *Porter's Intellectual Science.*

Political Economy.—Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades-union; tariff; education, etc. *Lectures by Professor. Ely's Outlines of Economics.*

A Post-graduate course has also been established in English. The following courses have been given:

(1) *Shakespeare*—Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV., Part I., Richard III., King John.

(2) *Dryden—Poetical Works* (Christie); *Essay of Dramatic Poesy* (Thomas Arnold); *Essay on Satire, etc.*, (Yonge); Saintsbury's *Life of Dryden.*

Pope—Poetical Works (Ward); *Satires* (Pattison); Stephen's *Life of Pope*, Gosse's *From Shakespeare to Pope* and *18th Century of Economics.*

(3) *English Literature of the Eighteenth Century;* Addison, Pope, Gray, Goldsmith, Burns, Cowper, Burke.

(4) *American Literature*: Longfellow, Lowell, Poe.

(5) *The Rise and Development of the English Essay*: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

CHEMISTRY.

ACTING PROFESSOR MURRILL.

INSTRUCTOR HARE.

INSTRUCTOR HOUGHTON.

Instruction in this department embraces—

1. A course of lectures in general chemistry.
2. A course of lectures in industrial chemistry.
3. A course of lectures in metallurgy.
4. A course of lectures in agricultural chemistry.
5. Systematic laboratory work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in general chemistry: This consists of a



CHEMICAL LABORATORY (INTERIOR,)

series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cooke's Chemical Philosophy, Chemical Journals.

2. Lectures in industrial chemistry (three per week) extend throughtout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams.

REFERENCE BOOKS.

Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Percy's Metallurgy, Sadtler's Industrial Organic Chemistry.

3. Course in metallurgy: This consists of lectures and recitations (two per week, during first term) upon the more important metals, such as iron and steel, copper, lead, tin, silver, mercury, zinc, etc. It includes a

discussion of the physical and chemical properties of the metals and of their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved.

4. Course in agricultural chemistry: This consists of lectures on chemistry in its application to agriculture (two per week, during second and third terms), and includes a thorough discussion of the origin, composition and classifiation of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist.

REFERENCE BOOKS.

Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson's and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

5. The course of systematic laboratory work: This course of practical work in the laboratory is carried on in connection with each course of lectures. In the junior year the work embraces the practical operations of chemical synthesis and analysis and includes the preparation of the non-metallic elements and their most important compounds, in addition to a systematic study of the metals and their compounds, their separation and identification. In the senior year students pursue work in quantitative analysis, including analysis of fertilizers, soils, coal, iron ore, iron and steel, sugars and sugar products, feed stuffs, minerals, mineral waters,

etc., being varied somewhat to suit the individual object of the student.

The laboratories, which are open from 9 A. M. to 5 P. M., during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative anaylsis, and in the method of prosecuting chemical researches. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common re-agents and apparatus used in qualitative or quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

In addition to the analytical work above described it is designed to give during the session a short course in electro-plating. Practical instruction in the electro-deposition of nickel, silver, gold,etc., upon other metals will be given, and, in addition, the application of electrolysis to chemical analysis will be studied both theoretically and practically.

TEXT-BOOKS.

In qualitative analysis.—Jones, Sellers, Fresenius, Plattner.

In quantitative analysis.—Fresenius, Cairns, Sutton, Rose, Blair's Analysis of Iron and Steel, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying.

In agricultural chemical analysis—Official methods of the Association of Agricultural Chemists, Wiley's Principles and Practice of Agricultural Analysis.

CHEMICAL LABORATORY.

[For description of the building see page 16.]

The chemical apparatus recently purchased for the laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, four short-arm Becker balances of latest pattern, Bunsen spectroscope, Abbe refractometer and other instruments for delicate and accurate work.

HISTORY AND LATIN.

PROFESSOR PETRIE.

ASSISTANT BOYD.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library.

In the freshman class, the subjects studied are the United States, Alabama, and England. The first term (two hours per week) is devoted to the history and government of the United States; the second term (two hours per week) to Alabama, and the third term (three hours per week) to the history of England.

In the sophomore class (three hours per week until March) the subject studied is general European history.

HISTORICAL LABORATORY.

In the junior and senior classes opportunity for special work in United States history is given those students of the General Course who elect it as laboratory work, and to any others who are properly qualified. The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information,

as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation and every incentive is given to the collection and use of new documents, papers and letters illustrative of Southern, and especially Alabama history.

The method of work is as follows: Informal lectures are given on important and suggestive points, as: The causes of the Revolution; the Constitutional Convention; the War of 1812; the Missouri Compromise; the Monroe Doctrine; Texas and Mexico; the Compromise of 1850; the Kansas Struggle; the Dred Scott Decision; Secession. After each lecture topics connected with it are assigned to the students with an outline of the points to be investigated. They report their results to the class and a discussion follows. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion.

Graduate students are expected to take part in the junior and senior discussions and in addition will meet with the professor for conference in regard to their work. Those who take history as their major subject are expected to devote a large part of their time to original research upon some topic on which they can consult the original sources of information. They are also required to pursue a prescribed course of reading as indicated below:

TEXT-BOOKS.

Freshman Class.—Cooper, Estill & Lemmon's History of the United States, Brown's History of Alabama, Montgomery's English History.

Sophomore Class.—Myers's General History.

Junior and Senior Classes.—Moore's American Congress.

Graduate Course.—Wilson's Division and Reunion, selected parts of Stephen's Constitutional History, and of Rhodes's History of the United States, Fiske's Critical Period, Lodge's Hamilton, Morse's Jefferson, Schurz's Clay, Lodge's Webster, Sumner's Andrew Jackson.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their Eng-

lish derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization, both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on the author read or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class a course of reading in English is prescribed descriptive of his life work and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

For the benefit of students who do not study the Latin language a series of popular lectures will be given upon the great Latin writers. Especial emphasis is laid on proficiency in writing Latin exercises and in translating Latin prose at sight.

TEXT-BOOKS.

Freshman Class.—Allen & Greenough's Grammar, Exercises, Nepos, Sallust or equivalent.

Sophomore Class.—Cicero, Allen & Greenough's Grammar Bennett's Latin Composition.

Junior Class—Virgil, Horace, Allen & Greenough's Grammar, Exercises, Guerber's Mythology, Preston & Dodge's Private Life of the Romans.

Senior Class.—Livy, Tacitus, Wilkins's Latin Literature, Exercises, History of Rome.

MODERN LANGUAGES.

PROFESSOR WIATT.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German

at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

The following regular courses are given in French and German.

French—First Year. Three recitations a week. During this year the principal object is to acquire a knowledge of the elements of grammar and a correct pronunciation, together with a facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year almost the same line of work is pursued as that begun the previous year. More difficult and varied French is read, and instruction is given upon the laws of grammar, the construction of the language, and the history of the literature. Special attention is given to sight translation.

German—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

The students in this department will meet the professor twice per week, from 4 to 5 p. m. during the *first term,* and the *third term,* for exercises in conversation in French and in German.

TEXT-BOOKS.

FRENCH—*First Year*: Edgren's Grammar and Locard's Supplementary Exercises. Super's Reader.

Second Year.—Feuillet's Le Roman d'un Jeune Homme Pauvre, Racine's Esther, Corneille's Le Menteur, Molière's Le Bourgeois Gentilhomme, selected plays, Whitney's Grammar, original exercises.

GERMAN—*First Year*: Joynes-Meissner's Grammar and Reader.

Second Year: Der Bibliothekar, Wilhelm Tell, Whitney's Grammar and Exercises, selected plays, original exercises.

GRADUATE COURSE.

This course is offered for the benefit of those students who wish to pursue the study of these subjects beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.

ASSISTANT JEPSON.

JUNIOR YEAR.

The students in this course study English, French or German, Physics, Mathematics, etc., as prescribed for the course of Civil Engineering in the junior and senior years and in addition thereto prosecute their studies in electricity and mechanics as herein prescribed.

Instruction is given by lectures and recitations.

First Term: Four hours per week are devoted to the study of the principles of electricity and magnetism, with especial reference to their industrial applications. The subject of electrical measurements is also treated in detail.

Second Term: Incandescent lighting, four hours per week.

Third Term: Arc lighting and wiring, four hours per week.

TEXT-BOOKS.

Ayrton's Practical Electricity. Houston and Kennelly's Incandescent and Arc Lighting. Cushing's Standard Wiring.



ELECTRICAL BUILDING.

LABORATORY WORK.—Four hours per week are given to work in the laboratory. This includes management of batteries, construction of instruments, electro-plating, electrical measurements, verification of the principles upon which the measurements of current, electromotive force and resistance are based, etc.

SENIOR YEAR.

First Term: Dynamo electric machinery, five hours per week.

Second Term: Alternating currents and alternating current machinery.

Third Term: Polyphase machinery and power transmission, five hours per week.

TEXT-BOOKS.

Dynamo Electric Machinery, Thompson. Alternating Currents, Franklin and Williamson. Standard Polyphase Apparatus, Oudin.

LABORATORY WORK.—Six hours per week are devoted to practical laboratory work, electrical measurements, relation of electric currents to heat and mechanical work, care and tests of dynamo and motors, calibration of voltmeters, ammeters and watt-meters, electric lighting, management and care of accumulators, energy consumed in lamps, adjustment and care of arc lamps, proper wiring of buildings, the application of electricity to street railways, magnetic measurements, tests of transformers and alternating motors, etc.

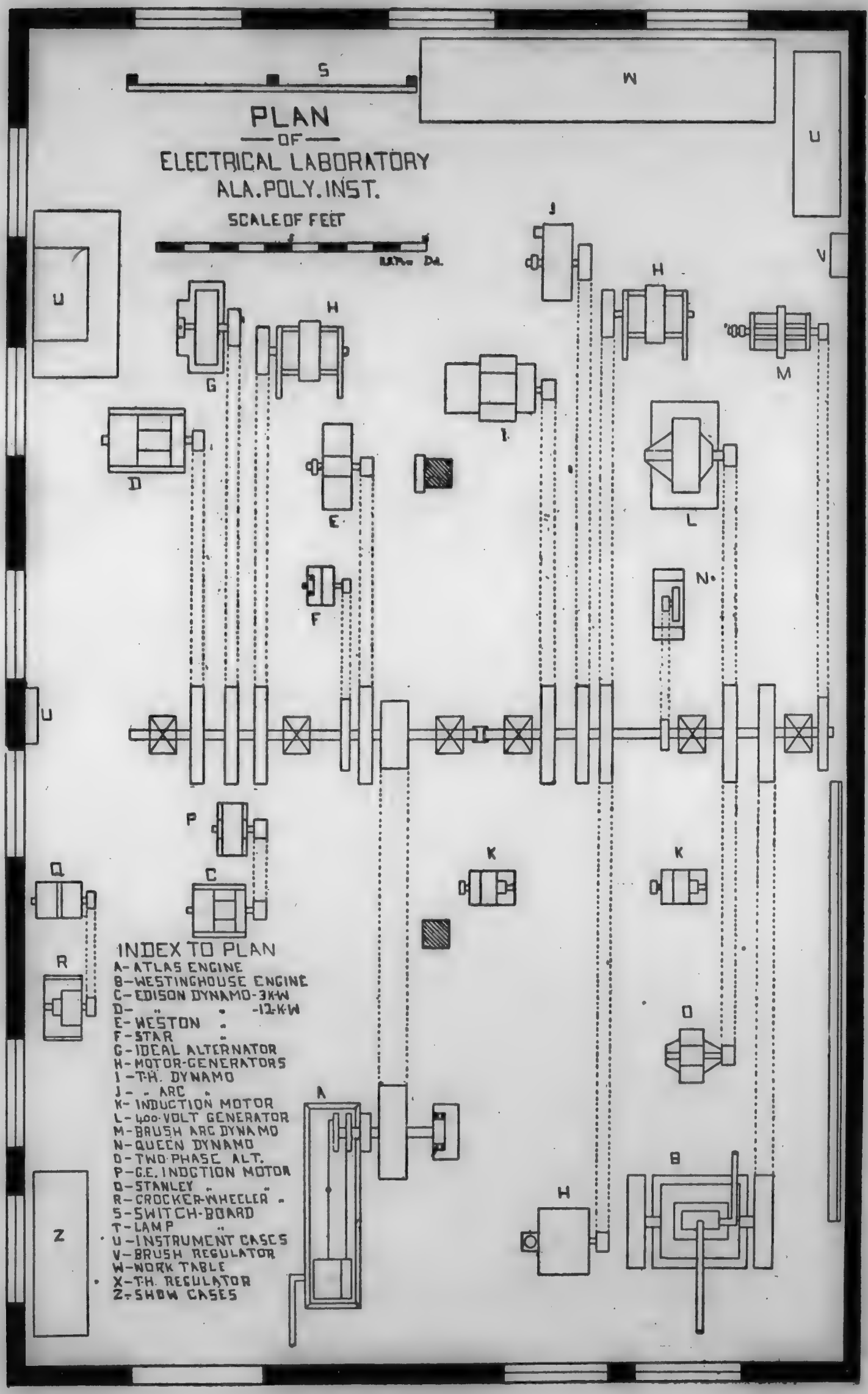
DRAWING AND CONSTRUCTION.—Two hours per week in the senior year are devoted to the design and construction of electrical machinery.

Encouragement is offered to advanced students for conducting original investigations, and opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students in connection with their experimental work.

In addition to the usual laboratory work, senior students spend a portion of their time in the boiler room, learning the management and care of the steam plant, and in turn take charge of the lighting plant, thus becoming familiar with running the engines and dynamos.

POST GRADUATE COURSE.—To graduate students more advanced courses in the theory and applications of alternating currents and alternating current machinery are given. The courses will be varied slightly from year to year to suit the needs of those taking the course.

In connection with this work suitable laboratory work will be given.


PLAN
OF
ELECTRICAL LABORATORY
ALA. POLY. INST.
SCALE OF FEET
INDEX TO PLAN
A-ATLAS ENGINE
B-WESTINGHOUSE ENGINE
C-EDISON DYNAMO-3K-W
D- " " -12-K-W
E-WESTON "
F-STAR "
G-IDEAL ALTERNATOR
H-MOTOR-GENERATORS
I-T-H. DYNAMO
J- " ARC "
K-INDUCTION MOTOR
L-400-VOLT GENERATOR
M-BRUSH ARC DYNAMO
N-QUEEN DYNAMO
O-TWO-PHASE ALT.
P-G.E. INDCTION MOTOR
Q-STANLEY " "
R-CROCKER-WHEELER "
S-SWITCH-BOARD
T-LAMP "
U-INSTRUMENT CASES
V-BRUSH REGULATOR
W-WORK TABLE
X-T-H. REGULATOR
Z-SHOW CASES

EQUIPMENT.

The laboratory is well supplied with batteries, storage and primary, telephones, plating apparatus and similar minor apparatus. Among the instruments of precision may be noted Kelvin ampere balances, graded current and potential galvanometers alternating and direct current ammeters and voltmeters of various ranges, from Weston, Queen, Jewell, Hartmann & Braun, Despretz, Fein, General Electric Company and other domestic and foreign makers. There are also direct reading and recording watt meters, dynamometers reading from .0001 ampere to 100 amperes, a number of resistance boxes and bridges, condensers, keys, galvanometers of various types, magnetic testing apparatus, portable and fixed, photometers, high potential testing apparatus, portable testing set, cradle dynamometer, a special instrument for comparing inductances, self and mutual, and capacities.

This department, being provided with Lord Kelvin's standard electrical instruments for exact measurements, will calibrate free of expense, any ammeter or voltmeter that may be sent to the College.

In the dynamo room the following are installed: One Weston 150 volt, 20 ampere dynamo, with rheostat; one Brush 6 arc light dynamo, with regulator and six lamps; one Ideal 5 kilo-watt three phase alternator; one Thompson-Houston 9 arc light dynamo with lamps; one Edison compound wound 12 kilo-watt generator; a Thompson-Houston 110 volt, 75 ampere generator; two street car motors used as either direct or alternating current generators or motors; two polyphase induction motors; one General Electric 5 horse-power induction motor, mounted on cradle dynamometer; General Electric 20 horse-power motor; one Stanley induction motor with condensers; Edison 3½ kilo-watt generator; a Crocker-Wheeler one horse-power motor and rheostat, and one bi-phase alternator, and 500 volt generator, made by special students, furnish current to laboratory and light up the different buildings. A lamp board with a capacity of 210 lamps has been installed and is used for testing purposes.

The dynamos occupy a separate brick building 50x32 feet, and are operated by a 35-horse power Westinghouse vertical engine, and a 25-horse power Atlas engine.

An electric motor, made by students, supplied with current from a generator at a distance of 3,000 feet, operates a gin, gin press,



WOOD ROOM.

ensilage cutter and feed cutter at the experiment station farm. This motor not only subserves a useful purpose in the operation of these machines, but is an excellent illustration of the electric transmission of power.

MECHANICAL ENGINEERING AND MECHANIC ARTS.

PROFESSOR WILMORE.

ASSOCIATE PROFESSOR CRENSHAW.

ASSISTANT PROFESSOR FULLAN.

INSTRUCTOR TRAMMELL.

ASSISTANT HILL.

The course in manual training covers three years, as follows: First year, wood-working—carpentry and turning; second year, pattern making and foundry and forge work—molding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the two lower classes. For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

The power for running the apparatus in this department is derived from a twenty-five horse-power Harris-Corliss automatic engine. A steam pump and a heater for the feed-water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected, and a 100-horse power Heine boiler installed.

The equipment for the wood-working shops comprise the following: 30 wood-working benches, each with complete set of carpenter's tools; 24 turning-lathes 10-inch swing each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing

machine; 1 jointer; 1 pattern-maker's lathe 16-inch swing; 1 36-inch grindstone. The tool room is supplied with a variety of extra hand tools for special work and in addition to the regular carpenters' tools in the benches each student is supplied with a set of chisels and plane irons with a locker to keep them in and is held responsible for their care and condition.

The equipment for the foundry consists of molding benches for 18 students, each supplied with a complete set of molder's tools; a 23-inch Colliau cupola, with all modern improvements, capable of melting 2,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small molding flasks, a foundry crane, special tools, etc.

The forge shop equipment consists of 24 down draft forges of new pattern each with a set of Smith's tools, anvil etc. The blast for all the forges is supplied with a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a 60-inch underground exhaust blower draws the smoke from the fires into the smoke flues and forces it out through the chimney.

The machine department occupies a brick building 30x50 feet, and is equipped with eight engine-lathes (screw-cutting 14-inch swing, six foot bed; 2 engine lathes, 16 inch swing (one with taper attachment); 1 engine lathe, 18-inch swing, with compound rest and taper attachment; 1 speed-lathe, 10-inch swing; 1 20-inch drill press (power feed); 1 10-inch sensitive drill; 1 15-inch shaper; 1 22-inch x22-inchx5 feet planer; 1 universal milling machine, 1 corundum tool grinder (14-inch wheel); 1 bench grinder; 1 post drill press; 1 Brown and Sharpe universal grinding machine; 1 power hack saw. A part of the room is set apart for vise work, chipping and filing; and benches for twelve students are provided, each with vise and set of files, chisels, hammers, etc. In the tool room is to be found a good supply of machinists' tools for general shop use, such as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, with machine for grinding twist drills.

The nature of the work in each department is as follows:

FIRST YEAR.

I. A course of carpentry or hand work covering the first two terms. The lessons include instruction in the nature and use of tools, instruction and practice in shop drawing, elementary work

with plane, saw, chisel, different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work, examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the third term. The lessons comprise nature and use of lathe and tools, plain straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plate and check work, hollow and spherical turning.

SECOND YEAR.

I. Course in forge work in iron and steel, occupying the first term. The lessons are arranged so that the students in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding, by various methods tool-forging, tempering, hardening, etc.

II. A course in pattern-making covering the second term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general molding.

III. A course in molding and casting in iron and brass occupying the third term. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in greensand in two part flasks; core work is also given and some three part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola.

In connection with this second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

THIRD YEAR.

I. Course of chipping and filing, covering the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved surfaces, key-seating, etc., filing and finishing to

line (straight and curved), surface filing and finishing, fitting, slotting, dovetail work, sawing, pin and screw filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron; steel and brass; turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press—reaming, boring, screw-cutting in lathe and with taps and dies, planing, slotting, etc., with planer and shaper, milling various forms with the milling machine, including exercises in making taps, reamers, etc., fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals; such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

All of the work is done from blue prints made by the class in drawing. In the construction work the student is given a blue print and the material for a certain part. He is then encouraged to study the work and plan the best method of doing it.

MECHANICAL ENGINEERING.

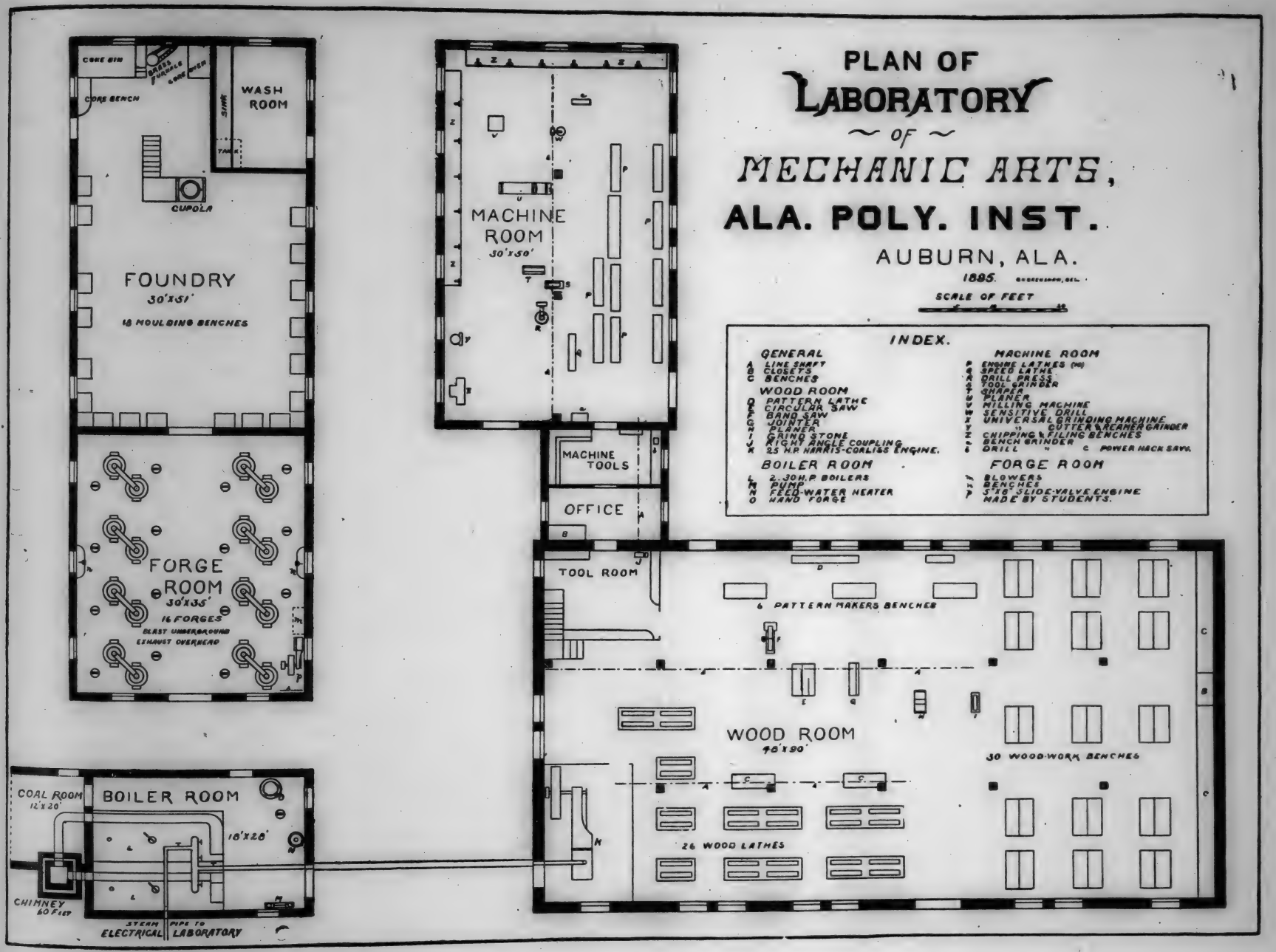
JUNIOR YEAR.

Elementary Mechanics.—Three hours a week for the first term are devoted to this subject. The fundamental laws underlying all mechanical science and the mechanics of liquids, gases and vapors are studied.

Kinematics.—Three recitations per week during the second and third terms are devoted to this subject.

Under this head machines are analyzed and their elementary combinations of mechanism studied. The communication of motion by gear-wheels, belts, cams, screws and link-work, the different ways of obtaining definite velocity ratios and definite changes of velocity, parallel motions and quick return motions as well as the designing of trains of mechanism for various purposes, together with the theoretical forms of teeth for gear wheels to transmit the motion through these trains, are investigated under this subject.

Mechanical Drawing.—During the first term the students make drawing to exact scale, of some of the simpler machines. The student takes his own measurements and makes his own sketches from which to make the finished drawing.


PLAN OF
LABORATORY
~ of ~
MECHANIC ARTS,
ALA. POLY. INST.
AUBURN, ALA.
1885.
SCALE OF FEET
INDEX.
GENERAL
A LINE SHAFT
B CLOSETS
C BENCHES
WOOD ROOM
D PATTERN LATHE
E CIRCULAR SAW
F BAND SAW
G JOINTER
H PLANER
I GRIND STONE
J RIGHT ANGLE COUPLING
K 25 H.P. HARRIS-CORLISS ENGINE.
BOILER ROOM
L 2-30 H.P. BOILERS
M PUMP
N FEED-WATER HEATER
O HAND FORGE
MACHINE ROOM
P ENGINE LATHES (10)
Q SPEED LATHE
R DRILL PRESS
S TOOL GRINDER
T SHAPER
U PLANER
V MILLING MACHINE
W SENSITIVE DRILL
X UNIVERSAL GRINDING MACHINE
Y CUTTER & REAMER GRINDER
Z CHIPPING & FILING BENCHES
a BENCH GRINDER
b DRILL " c POWER HACK SAWS
FORGE ROOM
1 BLOWERS
2 BENCHES
3 5"x8" SLIDE-VALVE ENGINE
MADE BY STUDENTS.
WASH ROOM
CORE BIN
CORE BENCH
CUPOLA
FOUNDRY
30'x51'
18 MOULDING BENCHES
FORGE ROOM
30'x35'
16 FORGES
BLAST UNDERGROUND
EXHAUST OVERHEAD
MACHINE ROOM
30'x50'
MACHINE TOOLS
OFFICE
TOOL ROOM
6 PATTERN MAKERS BENCHES
WOOD ROOM
40'x90'
30 WOOD-WORK BENCHES
26 WOOD LATHES
COAL ROOM
12'x20'
BOILER ROOM
16'x20'
CHIMNEY
60 Feet
STEAM PIPE TO
ELECTRICAL LABORATORY

TEXT-BOOKS.

Wood's Elementary Mechanics, Barr's Kinematics of Machinery.

SENIOR YEAR.

Mechanical Engineering of Power Plants.—The first term five hours per week is given to the study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages and disadvantages of each discussed. Extensive files of manufacturer's catalogues are kept and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work.

Steam Engine.—The second term five hours per week will be given to the study of the theory and efficiency of the steam engine, with discussions of the effects of condensation in cylinder, action of fly wheels, effects of jacketing, etc. Simple and compound engines, various valves and cut-off motions, and the principal types of modern engines are studied. Special attention is given to the steam engine indicator.

Applied Mechanics.—The third term, four hours per week is given to work in this subject. Applications of the mechanical principles previously learned, are made to the solution of practical problems. Considerable attention is given to graphical methods, these being used in preference to the analytical when possible.

One hour a week for the third term is given to a series of lectures on mechanical refrigeration and gas and gasolene engines.

Machine Design.—The subject of machine design is made a continuation of the junior course and runs throughout the year, two hours a week. The general plan of the work follows the text-book adopted, but variations are made and additional exercises given when found desirable. The strength and proportion of joints, fastenings and machine details are studied. Problems are given, the dimensions worked out and the drawings made. It is the purpose of the course, as far as time will permit, to prepare students for practical drawing-room work.

Laboratory Work.—The students are not only taught how to calibrate and use the different instruments, but they are brought in contact with engineering appliances under practical working conditions.

Thoroughness of work is sought rather than the performance of a large number of experiments.

The following course has been arranged:

Calibration of steam gauge; calibration of indicator spring; calibration of thermometer; calibration of scales and balances; calorimeter tests with barrel, separating and throttling calorimeters; boiler test with determination of the quality of steam and analysis of flue gas; efficiency test of engine with brake and indicator power measurement; test of hot air pumping engine; efficiency and duty of a steam pump; tensional, compressional and transverse tests of cast iron, wrought iron, steel and wood, in which are observed the limit of elasticity, the ultimate breaking strength and the modulus of elasticity.

This class usually makes a test of some electric plant or mill some time in the last term.

The apparatus for carrying on this work consists of a 100-horse power Heine boiler, a 45-horse power Imperial cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Deane air pump and circulating pump; of a 25-horse power Harris-Corliss engine, a 35-horse power Westinghouse engine, a 25-horse power Atlas engine, two 9-horse power engines constructed by students in the shops, a duplex Deane steam pump, an Ericsson hot air engine, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, pyrometers,

scales, a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester for correcting the standard gauge, a 35,000 pound testing machine, and Henning micrometer extensometer, a Carpenter calorimeter with auxiliary apparatus for determining the heating value of different fuels, a draft gauge, and a Henning pocket recorder.

TEXT-BOOKS.

Hutton's Mechanical Engineering of Power Plants, Holme's Steam Engine, Reid's Machine Design, Perry's Applied Mechanics.

REFERENCE BOOKS.

The Library contains a number of standard works on the various subjects studied, and the students are referred to them constantly for more extended treatment of many points that come up in class.

POST-GRADUATE COURSE.

The following course has been arranged and represents the amount of work required. Hydraulics may be substituted for thermodynamics if the members of the class are unanimous in wishing the change. Other substitutions may be made at the option of the professor, provided they represent an equivalent amount of work and are in the general line of the course selected.

Dynamometers.—This includes dynamometers and the measurement of power. Absorption and transmission dynomometers are studied, with their application and use in testing steam engines.

Valve Gears.—The different forms of valve gears of steam engines are studied, and problems in designing gears are worked out.

Thermodynamics of the Steam Engine.—This subject is studied theoretically and practically, and attempts a complete analysis of the action of steam in an engine.

Laboratory Work.—As much advanced laboratory work will be given as can be arranged with the appliances at hand.

TEXT-BOOKS.

Flather's Dynamometers and Measurement of Power, Spangler's Valve Gears, Peabody's Thermodynamics of the Steam Engine, Merriman's Hydraulics.

AGRICULTURE.

PROFESSOR DUGGAR.

Instruction in agriculture is given by means of lectures, text-books, bulletins of the agricultural experiment stations, and practical work in field, barn, and dairy.

The study of agriculture begins with the freshman class in the third term, and extends through three terms of the sophomore year and two terms of the junior year. The time devoted to this study in the lecture room is two hours per week with each class.

The subjects studied by the freshman class are the breeds of horses, cattle, sheep and hogs—their characteristics, uses, management and adaptability to the South. Practical work in judging live stock is included in the course. Five breeds of cattle and two of hogs are represented in the herd maintained by this department.

The first term of the sophomore year is devoted to dairying and to a study of the principles of live stock breeding. Dairying will be taught by practical work in the dairy—butter making, determination of fat in milk by the Babcock method, etc.,—as well as by instruction in the lecture room.

In the second term of the sophomore year the following subjects are studied: Soils—chemical and physical properties, defects, and means of improvement; the control of water, including means of conserving moisture in times of drought, terracing, underdrainage, and open and hillside ditches; objects and methods of cultivation; agricultural implements; rotation of crops; and improvement of plants by crossing, selection, and culture.

The third term of the sophomore year is devoted to the staple crops produced in Alabama, to forage plants adapted to the South, and to plants valuable for the renovation of soils. The more important crops are treated with reference to varieties, soil and fertilizer re-

quirements, methods of planting and cultivating, and uses.

In the junior year the subjects of feeding animals and of farm management are studied. Among the topics included under the latter heading are different systems of farming and stock growing, farm equipment and building, silos and silage, care of farm manures, composting, choice and methods of applying commercial fertilizers for different crops and soils, and economical methods of improving exhausted soils.

In every class the student is encouraged to independent thought on agricultural problems rather than to depend on "rules of thumb," so that he may be prepared to adapt his practice in after years to changed conditions of soil, climate, capital, market, etc. The successful farmer must be a thinker rather than a blind follower of inflexible rules.

The effort is made to keep before the student the difference between the widely applicable principles on which every rational system of farming rests and the details that vary with changing conditions. The conditions of soil, climate, etc., prevailing in different parts of Alabama are kept constantly in view.

As far as limited time allows, attention is directed to agricultural literature now accumulating so rapidly in this and in foreign countries, to the end that in future years the student may know where and how to seek the information that he may need.

Applicants for post-graduate work in agriculture will be assigned special research work and aided in the line of investigation deemed best for each individual student.

REFERENCE BOOKS.

Horses, Cattle, Sheep and Swine, by Curtis; The Study of Breeds, by Shaw; Milk and Its Products, by Wing; Dairyman's Manual, by Stewart; Soils and Crops of the Farm, Morrow & Hunt; Forage Plants by Shaw; The Fertility of the Soil, by Roberts; Corn Culture, by Plumb; The Soil, by King; Manures and the Principles of Manuring, by Aikman; Drainage for Profit and Health, by Waring; Agriculture in Some of its Relations with Chemistry, by Storer; Manual of Cattle Feeding by Armsby; Feeds and Feeding, by Henry; Stock Breeding, by Miles; Hand-book of Experiment Station Work; and selected publications of the various divisions of theU. S. Department of Agriculture and the agricultural experiment stations.

BIOLOGY AND HORTICULTURE.

PROFESSOR EARLE.

ASSISTANT MASON.

The subject of biology is required of the senior class in the courses of chemistry and agriculture, and of pharmacy. It occupies five hours a week for three terms of the senior year. The work in this department will be largely confined to the study of the lower forms of plant life and to vegetable physiology, or the study of plants as living beings. Under the first head special attention will be given to the bacteria and other diseases producing organisms of man and the higher animals; and to the parasitic fungi that cause diseases of plants. Under vegetable physiology those problems that explain the foundation for correct agricultural practices will be made most prominent. This will include the germination of seeds, the food and nutrition of plants, the circulation of sap, the processes of reproduction, plant variability, etc.

The instruction will be by text-book, supplemented by lectures and by practical laboratory work.

The students will be required to make careful microscopic drawings of objects studied. They will also collect material in the fields and determine it so far as their instruction will admit.

The equipment for instruction in this department comprises, besides a sufficient lecture room a students' laboratory and two small glass rooms for cultural and bacteriological work. These are supplied with water, gas and all necessary appliances for thorough primary and advanced work, including compound and dissecting microscopes for each student, microtomes, parafine baths, incubators, steam and dry sterilizers, instantaneous water heaters, Pasteur filter, chemical and common balances, set of Brendel's models of parasitic and other fungi, besides a large and well selected stock of glassware, staining fluids, chemical re-agents, culture, media, etc.

In the private office of the department, which is fitted up as a special laboratory for the use of the professor in charge, is located a



LABORATORY OF BIOLOGY.

good reference library and the scientific collections of the department. At present these consist of about 17,000 named specimens of fungi, and of the other groups of cryptogams. These books and collections are accessible to the students, and constitute, with the other resources mentioned, a superior equipment for advanced biological instruction.

HORTICULTURE.

At present special horticultural instruction is confined to the spring term of the junior year in the course of chemistry and agriculture, and to some practical work and "field lectures" to the students of the same course during the sophomore year. Instruction is given by lectures and text-book and by courses of reading, using the green house and orchards and gardens of the experiment station to give practical illustrations of the subjects taught.

Attention is called to the various fruits and vegetables that can be successfully cultivated in Alabama, and methods of propagation, cultivation and marketing are discussed. Particular attention is called to the diseases and insect enemies to which each of these crops are liable, and careful directions are given as to the best known means of combatting them. The construction and management of gree-houses, hotbeds and cold frames receive special attention, while such topics as floriculture, landscape gardening and forestry are discussed in a general way only.

Special work will be arranged for any student desiring to take a more extended course in horticulture.

MILITARY SCIENCE AND TACTICS.

COL. B. S. PATRICK, COMMANDANT.

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company and of the battalion in close and extended order, also in guard mountings, inspections, dress parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the College is provided with modern cadet rifles and accoutrements. Ammunition for practice firing is used under the direction of an experienced officer. The exercises in target practice begin the first day of the third term.

The following uniform of standard cadet gray cloth has been prescribed for dress. Coat and trousers as worn for fatigue at West Point, with dark blue cadet cap. A neat and serviceable uniform can be obtained here at $15 to $16. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct and scholarship. The commissioned officers will be selected either from the senior or junior classes, and promotion will depend on merit and not wholly on seniority.

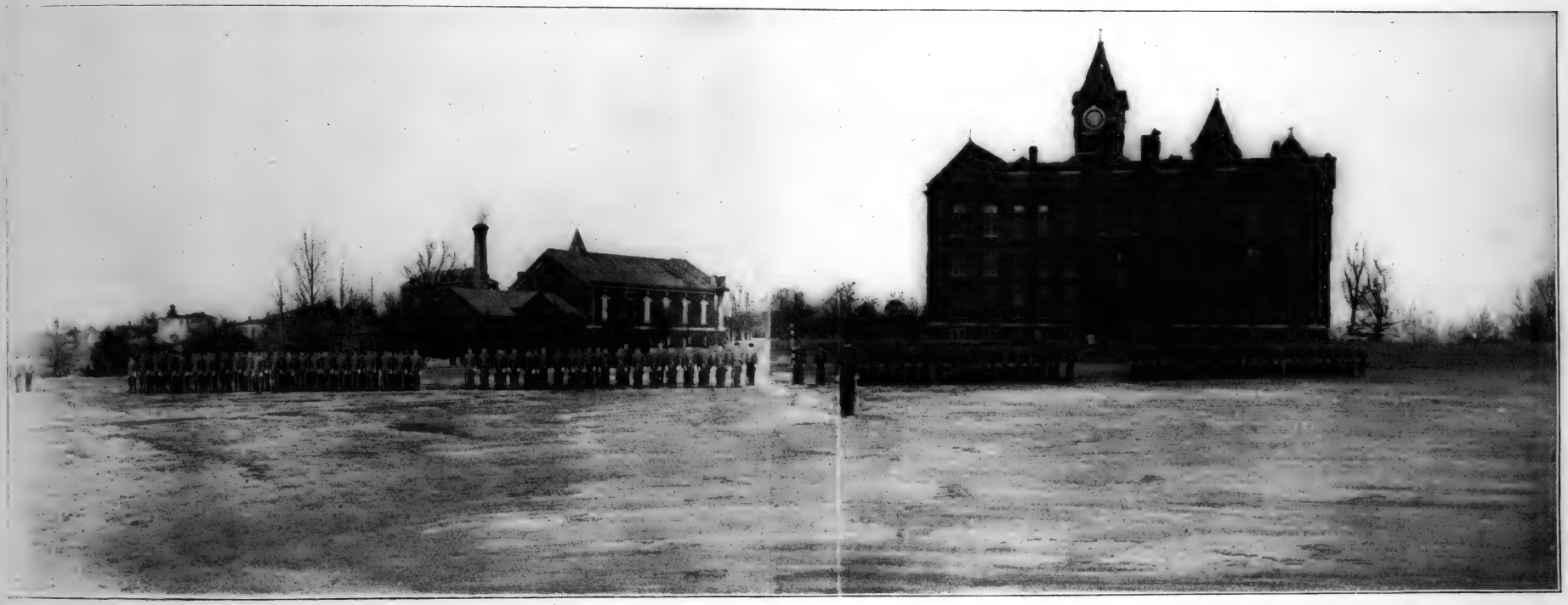
A band, composed of cadets, furnishes appropriate music at all reviews and parades, and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the President and Commandant. The resignation of his office by a minor will usually not be considered without first placing all the circumstances of the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Examinations will be conducted by a board of officers, to be composed of the Commandant of Cadets and two commissioned officers, to be designated by him. The proceedings of the board are subject to revision and approval by the President of the College.

Each company is officered by one captain and two first lieutenants, one second lieutenant, and with a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments



CORPS OF CADETS.

are confirmed by the President on nomination of the Commandant.

The junior class recites once a week in the United States Infantry Drill Regulations.

The senior class recites once a week in Wagner's Security and Information, and Manual of Guard Duty, U. S. Army.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. army and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

PHYSIOLOGY AND VETERINARY SCIENCE.

PROFESSOR CARY.

ASSISTANT DUNCAN.

PHYSIOLOGY.

The sophomore class studies human anatomy, physiology and hygiene during the entire college year.

It is the aim of the department to give the students practical and real knowledge of the gross anatomy and functions of the various parts of the human body. Due attention is given, also, to the laws of health—the conditions most favorable to a continuous healthy action of the organs of the human body.

Instruction is given by lectures and by text-books, supplemented by blackboard drawings, charts, models of organs, a human skeleton and by dissections of some of the smaller animals (dog, cat, etc).

Martin's Human Body is used as a text and reference book, and several other works on anatomy, physiology and hygiene may be consulted in the college library.

VETERINARY SCIENCE AND ART.

Students in the agricultural and chemical course of study, during the entire junior and senior years, devote to this work two hours per week in the class room and three hours per week at practical clinics. Instruction in veterinary science and art is given by lectures.

The lectures are arranged with special reference to the students who are interested in horses or other domestic animals; also to those students who contemplate studying human or veterinary medicine. While it is not the aim to give a complete course in veterinary medicine, we attempt to present the general principles of comparative medicine with such special applications as are adapted to the conditions and wants of the students.



Special attention is given to the exterior anatomy of the horse, while comparative anatomy is presented mainly in connection with the study of the diseases of the different apparatus of the horse or other domestic animals.

Lameness in the horse, minor surgery, the actions and uses of the most common medicines, the principles and practice of comparative medicine, and the ways of protecting the health of domestic animals, are considered in as plain and practical a manner as the time allotted to each subject will permit. Post-mortem examination and the dissection of domestic animals are used as object lessons in the study of general pathology and anatomy.

The senior class in pharmacy devotes three hours per week, during the first and second terms to the study of therapeutics; and three hours per week during the third term to class room and laboratory work in bacteriology.

To the post-graduate student this department furnishes work in histology, pathology, bacteriology, meat and milk inspection. This work gives students who contemplate studying medicine excellent preparatory work along that line. Such students may devote their entire time to work in this department with the approval of the faculty.

Histology includes methods of injecting small animals, collecting, fixing, hardening, embedding, section cutting, mounting, staining, examining under the microscope, drawing and describing the different tissues.

Pathology is studied in text and reference books and morbid histology embraces naked eye and microscopic examinations of diseased tissues in the laboratory. Quite a collection of diseased tissues and animal parasites are found in connection with the laboratory.

The laboratory is well fitted for the study of bacteriology. Bacteriological analysis of water, milk, sputum, pus, diseased tissues, and of soils can be made. All of the practical operations in the preparation of culture, media, sterilizations, inoculations of small animals, straining, microscopical examinations, may be learned. In the laboratory are 3 Bausch & Lomb and 2 Winkel microscopes, each of which is supplied with oil immersion objectives, 2 oculars, Abbe condenser, and iris diaphragm. Sterilizers, autoclaves, incubators, and all the necessary apparatus required in bacteriological work are to be found in the laboratory.

The department of physiology and veterinary scinece is now

located by itself in a building which consists of a two-story portion containing four laboratory rooms on the second floor and a lecture room, museum and office on the lower floor; and a one-story part which contains an operating room.

The building is supplied with water and gas and the laboratory is now equipped for work. The museum contains the skeletons of the horse, the ox, the sheep and the hog, and a human skeleton. It also contains anatomical models of the various parts and organs of the human body and models of many parts of the horse, the ox and the other domestic animals. It also contains a collection of pathological and anatomical specimens, and one of animal parasites.

The new veterinary hospital building contains five large box-stalls, four open single stalls, an office and a feed room on the lower floor; the upper floor is used as a storage room for hay, fodder etc. The hospital is supplied with fresh water.

A new brick and cement dissecting room (16x32) has just been completed. It is supplied with extensive north sky-light and with water and gas.

Every Saturday during the college year the department conducts a free clinic for the benefit of the students in veterinary science and art. Clinical cases have been various and numerous, giving the students opportunity to see and study many diseases and lameness and to become proficient in minor operations.

PHARMACY AND PHARMACOGNOSY.

PROFESSOR MILLER.

ASSISTANT MASON.

JUNIOR YEAR.

Pharmacy.—Class work, *three hours* a week. The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in pharmacy. Apparatus used in pharmaceutical processes. Discussion of all classes of pharmaceutical preparations.

Laboratory, *nine hours* a week. Preparation of official and non-official galenicals.

Pharmacognosy.—Class work with laboratory work,



LABORATORY OF PHARMACY.

four hours a week. All official vegetable drugs studied with aid of simple and compound microscope.

SENIOR YEAR.

Pharmacy.—Class work, *four hours* a week. Official and non-official pharmaceutical chemicals, inorganic and organic, including the more important newer remedies. The prescription. Incompatibilities. Doses.

Laboratory, *nine hours* a week. Preparation of official and non-official pharmaceutical chemicals, inorganic and organic. Pharmaceutical testing by pharmacopœial methods. Drug assaying, special attention given to compounding of prescriptions.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. Study of important non-official vegetable drugs; of drugs of animal origin; of adulterants and worthless drugs. Practical exercises in identification of pharmaceutical preparations and chemicals.

The practical work in pharmacy includes the manufacture of not less than two hundred pharamaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 300 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

MISCELLANEOUS.

GYMNASIUM AND ATHLETIC FIELD.

The gymnasium is situated at the west end of the athletic and drill grounds and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures.

It is equipped with Spalding's gymnasium apparatus

and is open to all students at stated hours, under the care of an officer.

The athletic field has a quarter-mile cinder track and ample space for football, baseball and general athletics.

DISCIPLINE.

The government of the College is administered by the President and Faculty in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study and punctuality in attendance in recitations and all other duties, are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainment, or game, without previously obtaining the consent of the faculty.

No cadet will be permitted, without the approval of his parent or guardian, to take part in a public game of football; nor will permission be given for any athletic game to a student deficient in his studies.

MILITARY DRILL.

There are three regular military drills each week and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This association is regulary organized and has a well furnished room on the first floor of the main building set apart for its exclusive use. Through its weekly meetings it exerts a wholesome Christian influence among the students.

Students are advised to unite with the Association when they enter the Institute.

The ladies of the different churches in Auburn have recently formed an auxiliary association to the Y. M. C. A. of this Institute. Assisted by members of the faculty, they will hold monthly a joint service of praise in the College chapel and will provide lecturers for the occasion.

They have also undertaken to build a special hall for the use of the Association, and will solicit subscriptions for that purpose.

The following are the officers:

A. F. JACKSON, President.
G. W. SNEDECOR, Vice President.
P. S. HALEY, Corresponding Secretary.
L. WHORTON, Recording Secretary.
J. T. LETCHER, Treasurer.
J. O. WEBB, Librarian.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miues east of Montgomery on the line of the Western Railroad.

The region is high and healthful noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide-water. By statute of the State the sale of spiritous liquors and keeping saloons of any kind are forbidden.

BOARDING.

The Institute has no barracks or dormitories and the students board with families in the town of Auburn, and thus enjoy all the protecting and beneficial influence of the family circle.

REGULATIONS.

(1) Eash student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the College.

(2) Every absence from recitation or examination is graded zero.

(3) When the term grade of a cadet is lowered by reason of absence for which satisfactory excuse can be rendered, a special term re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(4) Only sickness, as reported by the Surgeon, or being absent by reason of family sickness, will constitute a satisfactory excuse for granting a re-examination.

When a cadet is called away from College by his parents his zeroes for absences are not removed.

(5) The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

(6) Privates of the senior class in full standing who are candidates for graduation may be excused by the President from all military drills, and also students over twenty-one years of age at the time of entering College that are permitted to devote their time to one special study, as chemistry, agriculture or pharmacy, provided the time devoted to drill is spent by them in laboratory work.

No cadet can continue an officer in the corps who during a session is classed in the fourth grade in two or more subjects at any term examination, or in the fourth grade in one subject at two term examinations; nor who receives during the session more than 60 demerits. For failures of officers re-examinations will not be granted.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of distinction are awarded in public on commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class, provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.



GENERAL LIBRARY.

HONORS.

Members of the senior class who attain distinction at the final examinations with an average grade, in the subjects required, of 95 per cent. will be published as

GRADUATES WITH HIGHEST HONOR.

Those who attain distinction with an average grade of 90 per cent., and less than 95, are published as

GRADUATES WITH HONOR.

Those who attain less than 90 per cent. and more than 60 per cent. are published as *Graduates*.

Students, of the classes lower than the senior, who attain distinction with an average grade in the required subjects of 95 per cent. are published in alphabetical order as having attained the *Highest distinction*.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervening intervals reports, giving the grade made by each student, are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the month are held by each professor during the months of October, February and April. Each examination occupies one hour.

At the end of each term written examinations or written and oral, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations, can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except in extreme cases.

LIBRARY.

The library occupies an elegant, well-lighted room in the main building, and also two smaller adjacent rooms. It contains over 15,000 bound volumes, including valuable reference and scientific

books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

MUSEUM.

The museum occupies a large room in the third story. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character. It is under the charge of Professor P. H. Mell, to whom specimens as contributions may be sent.

BOARDING HOUSES.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after "call to quarters," or are guilty of any violation of order. The report of the inspector is made to the Commandant on alternate days of the week.

Students, after selecting their boarding-houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons.

Permission to board and lodge at separate houses will be granted only to seniors, to cadets twenty-one years of age and to those who are on the "honor roll," except on special conditions.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Incidental fee, per session	$5.00
Library fee, per session	2.00
Surgeon's fee, per session	5.00
	$12.00

These fees are payable on matriculation. By order of the trustees no fees can be remitted.

For students entering after January 1st, the fees for a half session only are required.

For a non-resident of the State there is a charge for tuition of $20.00 per session, payable on matriculation, in addition to the annual fee of $12.00 payable by all students.

Board, including lodging, fuel and lights, is furnished at $12.50 to $15.00 per month.

The necessary expenses for a session, not including uniforms or books, are for a resident of Alabama, as follows:

College fees	$ 12.00	$ 12.00
Board, lodging, fuel and lights	112.50	135.00
Washing	9.00	9 00
Total	$133.50	$156.00

By special arrangement with the College authorities, Mrs. M. L. Mitchell, Mr. R. S. Rutland and Mr. B. T. Blasingame will accommodate students with board, lodging, fuel, etc., for $9.50 per month.

By boarding at one of these houses the necessary expenses may be reduced to $106.50 per session. This estimate does not include the cost of the uniform, about $15,00, or of books, say from $5.00 to $15.00, or the laboratory fees in the higher classes, $5.00 or $10.00.

LABORATORY FEES.

For each student in the junior or senior laboratory in chemistry, or in electrical and mechanical engineering, a fee of $5.00 per session is required. This fee is payable on admission to the laboratory and is not remitted.

NON-RESIDENT STUDENTS.

Tuition for students, not residents of Alabama, is $20.00 per session, unless remitted by the Trustees to worthy students upon the recommendation of the Faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year,

to those who obtain a distinction the preceding year or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remtted to sons of ministers of the gospel.

HONOR SCHOLARSHIPS.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session1899-1900, an honor scholarship, which exempted from tuition fees:

R. T. Arnold.....Florida.
W. W. Askew.....Georgia.
R. Y. Buchanan.....Georgia.
D. Chipley.....Florida.
J. D. Elliott.....Minnesota.
F. C. Greene.....Georgia.
A. F. Jackson.....Georgia.
M. Ketchum.....New York.
K. E. Lindrose.....Louisiana.
J. H. Mitchell.....Georgia.
H. E. Werner.....Texas.
W. D. Willis.....Florida.
H. M. Yonge.....Florida.
J. E. D. Yonge.....Florida.

UNIFORM.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made, by a contractor, of excellent cloth manufactured at the Charlottesville mill. This suit, including cap, costs at present $15.50. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

Fees to be paid on entrance:

Incidental fee	$5 00	
Library	2 00	
Surgeon	5 00	
Contingent fee	5 00	
Uniform	15 50	
For a resident of Alabama	$32 50	$32 50
Tuition non-resident		$20 00
For a non-resident		$52 50

Besides the above, the student should deposit with the Treasurer enough to pay for books, one month's board, incidentals, amounting to, say, $27.50. Hence, a resident of Alabama should deposit with the Treasurer $60,00, a non-resident, $75.00.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons, or wards, whether for regular charges of college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands and to pay all expenses incurred by the students including board, uniform, books, etc., when approved.

When funds are deposited checks are drawn on the Treasurer of the College by the Cadet to pay his necessary expenses. These checks are paid only when officially approved. The approval is given only for necessary expenses, as stated in the catalogue, unless specially requested in writing by the parent.

The College cannot he held responsible for the expenses of a student, unless the funds are deposited with the treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty a thesis, or oration and read and deliver the same at commencement, if required by the Faculty.

There may be presented, with the approval of the professor in charge, a carefully written report of special work done in a labora-

tory showing independent investigation and discussion of some subject.

It must be given to the Professor of English by the first of May.

The subject must be submitted for approval by January 1st.

LITERARY SOCIETIES.

There are two literary societies connected with the College—the Wirt and the Websterian. Each has a hall in the main building.

These societies hold celebrations on the evenings of Thanksgiving Day and 22nd of February. A gentleman, selected by the Faculty, is invited to deliver an address before the Literary Societies at Commencement.

To encourage the literary societies the Trustees have directed that a medal be awarded on commencement day to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection to be determined by the Faculty.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in the presence of the Faculty and students.

The *first and second terms* the students of the junior and sophomore classes are exercised in original orations and declamation.

The *second and third terms* the members of the senior class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

In 1885, the Alumni Society established "The Alumni Scholarship," which makes an annual loan of one hundred and seventy dollars to a beneficiary elected by the society. Young men have been thus enabled to go through college. This scholarship is supported by annual contributions from the Alumni and other friends of the institution.

The beneficiary selected is admitted without charge for tuition or college fees of any character.

Subscriptions should be sent to B. H. Crenshaw, Treasurer, Auburn, Ala.

The annual alumni oration is delivered by a member of the society, in Langdon Hall, on Alumni Day, Tuesday of commencement week.

The following are officers of the society:

R. AP C. JONES.....President.
B. B. ROSS .....1st Vice-President.
W. L. FLEMING .....2nd Vice-President.
B. H. CRENSHAW .....Treasurer.
H. H. KYSER .....Secretary
A. A. PERSONS.....Orator for 1901.
J. F. WEBB .....Alternate.

SURGEON.

The surgeon is required to be present at the College daily, to visit at their quarters the cadets that are reported sick, and to give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering college.

ACADEMIC YEAR.

The academic year for 1901-1902 commences on Wednesday, 11th September, 1901 (*second Wednesday after the first Monday*), and ends on Wednesday, 11th June, 1902 (*second Wednesday after first Monday*), which is commencement day.

It is divided into three terms. The first term extends from the opening of the session to the 20th of December; the second term begins January 2nd, and ends March 18th; the third term continues to the close of the session.

DONATIONS TO THE LIBRARY.

U. S. Government.—Public Documents, 376 volumes.

R. L. Thornton, Tuscaloosa, Ala.—History of the Indian Wars, by Henry Trumbull.

Gen. Jas. H. Lane, Auburn, Ala.—History of Randolph-Macon College, by Richard Irby.

Dr. Geo. Petrie, Auburn, Ala.—Proceedings of the First Annual Meeting of the National Conference on University Extension, compiled by George Francis James. Handbook of University Extension, edited by George Francis James.

Handbook of University Extension (second edition, revised and enlarged), edited by George Francis James.

Political Discussions—Legislative, Diplomatic and Popular, by James G. Blaine.

Report of the Special Committee on the Troubles in Kansas.

Historic Towns of the Southern States, edited by Lyman P. Powell.

Mrs. N. T. Lupton.—Five hundred pamphlets and periodicals devoted to scientific subjects.

DONATIONS TO ELECTRICAL ENGINEERING DEPARTMENT.

The General Electric Co.—One kilowatt transformer.

The Pyle National Electric Headlight Co.—Complete electric headlight equipment, consisting of compound steam turbine, dynamo, and projection lamp.

The Dressel Railway Lamp Works.—One eighteen-inch headlight casing and reflector.

DONATIONS TO AGRICULTURAL DEPARTMENT.

Three sacks nitrate of soda from Dr. J. A. Myers, New York, N. Y.

Two and one-half tons kainit from German Kali Works, New York, N. Y.

One ton muriate of potash from same.

One lot of seed corn from Curry-Arrington Co., Rome, Ga.

One lot of seed corn from W. S. Sanders, Danielville, Ga.

One lot of seed corn from Dr. W. C. Stubbs, Audubon Park, La.

One lot of seed corn from Prof. C. L. Newman, Fayetteville, Ark.

One lot of sorghum seed from Curry-Arrington Co., Rome, Ga.

One Hallock Success Weeder, from Hallock Weeder & Cultivator Co., New York, N. Y.

DONATIONS TO COLLEGE MUSEUM

During Session of 1900-1901.

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CALENDAR, 1902-1903.

SESSION BEGINS	Wednesday, Sept. 10, 1902.
Examination for admission	Wednesday, Sept. 10, 1902.
First term begins	Wednesday, Sept. 10, 1902.
Literary Society Celebration—Thanksgiving Day	Nov. 27, 1902.
First term ends	Tuesday, Dec. 23, 1902.
SECOND TERM BEGINS	Tuesday, Jan. 6, 1903.
Literary Society Celebration	Monday, Feb 23, 1903.
Senior Class exercises	Monday, Feb. 23, 1903.
Second term ends	Saturday, March 14, 1903.
THIRD TERM BEGINS	Monday, March 16, 1903.
Senior Thesis Reported	Friday, May 1, 1903.
Sophomore Class exercises	Friday, May 1, 1903.
Field Day	Friday, May 1, 1903.
Final examinations begin	Friday, May 29, 1903.
Commencement sermon	Sunday, June 7, 1903.
Annual meeting of Trustees	Monday, June 8, 1903.
Military exercises, 4 p. m.	Monday, June 8, 1903.
Junior Class Celebration, 8 p. m.	Monday, June 8, 1903.
Alumni Day	Tuesday, June 9, 1903.
Military exercises, 5 p. m.	Tuesday, June 9, 1903.
Address before Literary Societies, 8 p. m.	Tuesday, June 9, 1903.
COMMENCEMENT DAY	Wednesday, June 10, 1903.

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OF THE

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STATE COLLEGE

FOR THE

BENEFIT OF AGRICULTURE AND THE MECHANIC ARTS

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*Died January 23, 1902.

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*Died Jan. 23d, 1902.

The Institute is a distinctive school of Science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts established by the State in 1872, by endowing it with the land-grant appropriation made by the U. S. Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

In its course of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty. The Institute thus endeavors to educate as well as instruct, to form character as well as give information of value.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The Institufe now possesses facilities for giving laboratory instruction in applied science in the following departments:

I. IN AGRICULTURE AND HORTICULTURE.

The farm contains 304 acres, and is supplied with illustrative specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

II. IN MECHANIC ARTS.

The laboratory of mechanic arts is used as an auxiliary in industrial education, and as a school of manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is instructive in character, as in any other laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the Institute

each student enters this school and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus by associating manual and mental training, to educate thoroughly the student for the duties of life, whatever may be his vocation. There is no attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall, 90x50 feet, and is provided with a twenty-five horse-power Corliss engine, a planer, circular saw, band-saw, a buzz planer, a pattern maker's lathe, twenty-four stands, each with a lathe and a full set of tools, and thirty benches for carpenter work with the tools requisite for construction.

A brick building, 52x87 feet, with two rooms, has been constructed especially for instruction in working iron.

One room is equipped with twenty-four forges and tools required for a forge department, and the other with a Colliau cupola furnace, a core oven, a brass furnace, molding benches, foundry crane constructed by students, and special tools for use in a foundry.

The forge and foundry rooms are furnished with a fan and exhauster, supplied with power from an engine constructed by the students in mechanic arts.

The machine department occupies a brick building, 30x100 feet, and is equipped with eleven engine lathes, one speed lathe, one 20-inch drill press, one 10-inch sensitive drill, one 16-inch shaper, one 5-foot planer, one 6-foot planer, one universal milling machine, a corundum tool grinder, a small emery grinder, a No. 1 Brown

& Sharpe universal grinding machine, a universal cutter and reamer grinder, and a power hack saw.

The chipping and filing department is arranged with benches, vises and tools for eighteen students.

The tool room is well supplied with special tools for use in instruction, including a machine for grinding twist drills. The rooms are lighted with electricity whenever necessary.

III. IN PRACTICAL CHEMISTRY.

The chemical laboratory is supplied with modern apparatus, and in its equipment affords excellent facilities for instruction in practical chemistry and for investigation.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates sixty students, a special laboratory for Seniors that will accommodate thirty students, a lecture room with a capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

IV. IN ELECTRICAL ENGINEERING.

The electrical laboratory is well supplied with modern appliances for instruction in electrical engineering. It occupies three large rooms in the basement and is equipped with many fine instruments of precision.

In addition to resistance boxes, bridges, condensers, galvanometers, dynamometers, wattmeters, photometers, and other laboratory instruments, the department

is supplied with representatives of the best types of commercial electrical instruments from foreign and domestic makers.

The laboratory is also equipped with apparatus for making breakdown tests of insulating materials, up to 30,000 volts, also with spectroscopic apparatus for testing the quality of arc light carbons.

The dynamos occupy a separate building and are operated by a twenty-five horse power Atlas engine, and a sixty horse power Harrisburg standard engine. In this building are installed the following dynamos:

Edison compound 12 Kilo-watt generator, Thompson-Houston 150 light 110 volt dynamo, Weston 150 volt 25 ampere generator, Crocker-Wheeler one horse power motor, Ideal 3 phase alternator, Brush 6 arc light dynamo with lamps, two Baxter street car motors, 20 horse power each (so connected as to be used as direct or alternating current motors or generators), one 5 horse power three phrase motor, one General Electric 20-horse power motor, one 40 light shunt dynamo, one Edison 3 Kilowatt generator, one Stanley induction motor with condensers, two bi-phase induction motors (built by students), one 9 light Thompson-Houston arc machine, one Fort Wayne 1 horse power alternating current motor, a number of transformers, etc., two phase alternator and 500 volt 20 ampere generator, made by students. There is also in connection with this department at the experiment station, a ten horse power motor, made by students, which is operated by the 500 volt generator in the dynamo room.

V. IN PHYSICS.

The physical laboratory occupies two rooms, one of these being permanently darkened for experimental work in light.

It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, a horizontal comparator, a Kater's reversion pendulum, balances, etc., and a quantity of minor apparatus.

Recently there has been added a concave grating spectrograph, a large induction coil of 12 inch spark, and other apparatus of value.

VI. IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate thirty students, with an excellent collection of minerals.

VII. IN BOTANY.

In the work of the agricultural experiment station there is a botanical garden under the charge of the professor of botany; investigations in botany are given special attention, and opportunities are offered advanced students for practical work in a laboratory especially fitted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research. This department is provided with Auzoux's clastic models of seeds and flowers for teaching botany.

VIII. IN BIOLOGY.

The laboratory for plant morphology, histology, and pathology adjoins the lecture room of the professor, and is well equipped with appliances for the investigation of these subjects.

A small laboratory and adjoining greenhouse are being thoroughly equipped for work in experimental

plant physiology and pathology. It is hoped that during the coming year excellent facilities may then be offered for the study of these objects.

IX. IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, models of bridges, etc., is provided for the use of the students, and the customary exercises in the field are given.

X. IN DRAWING.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing room, which will accommodate fifty students, is provided with tables, lock-boxes, etc.

XI. IN MECHANICAL ENGINEERING.

The mechanical course has been extended to include experimental work in mechanical engineering.

The apparatus available for this instruction is as follows: A 45-horse power Imperial Cross compound engine, specially arranged for experimental work, supplied with Wheeler surface condenser and Worthington air pump and circulating pump, a 25-horse power Harris-Corliss engine, a 35-horse power Westinghouse engine, two 9-horse power engines constructed by students, the 100-horse power boiler belonging to the regular power plant, a Deane duplex steam pump, a 4-horse power gasoline engine, an Ericsson hot air engine, a New York air pump, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, thermometers, a pyrometer, scales, a standard steam

gauge with apparatus for testing steam gauges, a Crosby dead weight tester with weights for correcting the standard gauge, a 35,000-pound testing machine, a Henning micrometer extensometer, and a Carpenter calorimeter with the necessary auxiliary apparatus for determining the heating value of different kinds of coal.

This work is now carried on in the lower story of the annex to the chemical laboratory. This room is 30x60 feet in size, and was specially designed and fitted up for this purpose. A three-inch steam main has been laid from the boiler house, thus securing a steam supply in the building for all work requiring it. The work is thoroughly practical, and it is desired to extend it as rapidly as the funds available for the purchase of apparatus will allow.

XII. IN PHYSIOLOGY AND VETERINARY SCIENCE.

There has been constructed for the veterinary department a new and separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, and museum with skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room constructed, with cement floor and north roof light especially for this department. This Laboratory is used by the professor and students each afternoon for three months.

XIII. IN PHARMACY.

The laboratory of this department occupies the second floor of the annex to chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations.

The students work in the laboratory with the professor, from five to eight hours, six days in the week.

The facilities are increased as means are available.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE BUILDINGS.

The frontispiece is a representation of the main College building. It is 160x71 feet, and contains forty-five rooms. This building is not used for dormitories for students, but is appropriated to purposes of instruction and investigation.

It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc.

LANGDON HALL.

This is a two-story building, 90x50 feet. The second story is the audience hall, used for commencement and other public occasions.

The first story is appropriated to the laboratory of mechanic arts.

THE CHEMICAL LABORATORY.

As shown on the opposite page this is a two-story structure, 40x60 feet, with a rear projection, 35x60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and terra cotta ornamentation.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains improved working tables, with water, gas and every necessary appliance for chemical work.

The laboratory for advanced work in chemistry will accommodate thirty students and is equipped in the same manner. Adjoining this are two rooms which are used respectively as a balance room, and a room for work with spectroscope, polariscope, etc.

The second story contains a lecture room with seats and tablets for eighty students. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and mechanical chemistry, prominent subjects taught in the institution.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building, containing rooms for pharmacy, mechanical engineering and drawing.

The Chemical Laboratory for the Agricultural Experiment Station occupies a building 60x26 feet and is appropriated exclusively for chemical investigation and research, and not for instruction.



CHEMICAL LABORATORY.

HONOR ROLL FOR CONDUCT, 1902.

The names of the following cadets, who have received no demerits during the year, are placed upon the honor roll for good conduct:

SUB-FRESHMAN CLASS.

Hixon, C. B.
Holt, J. E.
Jackson, C. E.
Nelson, A. B.
Rhodes, C. E.
Wilson, W. S.
Webb, T. J.
Webb, E. F.

SPECIAL STUDENTS.

Bonner, W. J.
Crumpler, L. H.
McLeod, H.
Jackson, E. C.
McNeel, A. M.
Owen, W. F.
Sawyer, B. R.
Steele, B. W.

FRESHMAN CLASS.

Allison, H. A.
Campbell, B. M.
Going, W. S.
Greene, J. B.
Hanby, E. K.
Jackson, C. J.
McAdory, I. S.
Meredith, W. M.
Middleton, F. S.
Newman, F. F.
Robinson, J. L.
Riley, T. A.
Rogers, C. M. A.
Thomas, A. L.
Wood, J. W.

SOPHOMORE CLASS.

Burke, R. P.
Chipley, D.
Davis, H. E.
Foss, G. B.
Hill, G. B.
Hudson, J. D.
Hunt, F. E.
Kauffman, R.
Matson, T. H.
Mitchell, J. H.
Rigney, P.
Rutledge, C. P.
Thornton, W. L.
Turnley, W. M.
Yonge, H. M.

JUNIOR CLASS.

Atkinson, F. C.
Ellis, M.
Collins, C. A.
Dawson, R. G.
Feagin, C. E.
Hamilton, W. B.
Herndon, D. T.
Kyser, J. A.
Lide, M. J.
Snedecor, G. W.
Webb, J. O.
Willis, W. D.
Yonge, J. E. D.

SENIOR CLASS.

Arnold, R. T.
Bradford, K.
Bragg, T.
Conner, H. H.
Eagar, W. H.
Felton, L. M.
Foy, J. D.
Hagler, W. H.
Haley, P. S.
Jackson, A. F.
Jackson, J. B.
Kahn, M. D.
Kauffman, C.
Killebrew, E. S.
Letcher, J. T.
Lindrose, K. E.
Noll, W. L.
McCrary, W. D.
McGehee, W. B.
Parker, D. J.
Phelps, J. C.
Stickle, H. S.
Turpin, M. C.
Werner, H. E.
Whitfield, G.
Williams, J. C.

GRADUATES IN 1901.

CLASS OF 1901.

HONORS.

Members of the Senior Class who attained distinction with a grade of 95 per cent. are Graduates with Highest Honor. Those who attained a distinction with a grade of 90 per cent. and less than 95, are Graduates with Honor. Those who attained less than 90 per cent. and more than 60 per cent. are Graduates.

DEGREES.

BACHELOR OF SCIENCE.

GRADUATES.

Robertson Tanner Arnold ..... Florida
Idaline Bell ..... Lee
Kenneth Bradford ..... Montgomery
Samuel Hamner Browne ..... Tuscaloosa
Salmon Holmes Burns ..... Lee
David James Castleman ..... Hale
LeRoy Madison Felton ..... South Carolina
James Olney Goggans ..... Tallapoosa
Walter Lee Greene ..... Lee
William Hope Haigler ..... Montgomery
Michael Smith Harvey ..... Lee
Charles Henry Haynes ..... Bullock
Daniel Hagood Haynes ..... Dallas
Arber Samuel Hertz ..... Georgia
Robert Holland Hood ..... Jefferson
Arthur Flournoy Jackson ..... Georgia
James Baxter Jackson ..... Lee
Jefferson Franklin Jones ..... Sumter
Claude Kauffman ..... Mobile
Emmett Stephens Killebrew ..... Dale
William Reid Lancaster ..... Lee

Walter Deems McCrary .....Lee
William Boyd McGehee .....Montgomery
Benjamin Baldwin Meriwether .....Montgomery
Isaac Lenoir Moore .....Lee
Merrill Hastings Moore .....Montgomery
William Louis Noll .....Tennessee
James Cochran Phelps .....Lee
James Blackmon Powell .....Bullock
Shepherd Harrison Roberts .....Montgomery
Harvey Owen Sargent .....Franklin
Lyman Hall Shaw .....Sumter
Henry Alexander Skeggs .....Morgan
Matthew Scott Sloan .....Mobile
Holland McTyeire Smith .....Lee
Louis Sternfeld .....Montgomery
Leonidas Wharton .....Cherokee
Gaius Whitfield .....Marengo
Jere Crawford Williams .....Lee
John Rutledge Williams .....Jefferson
Edward Houston Wills .....Lee

GRADUATES WITH HONOR.

Herschel Winston Bass .....St. Clair
Thomas Bragg .....Lee
Herschel Henry Conner .....Macon
William Hamilton Eagar .....Winston
Eugene Flynn Enslen .....Jefferson
John Drewry Foy .....Barbour
Myron Daniel Kahn .....Lee
Karl Edward Lindrose .....Mississippi
Dorsey Julian Parker .....Escambia
Oscar Menderson Schloss .....Barbour
John Hunt Skeggs .....Morgan
Godfrey Rhodes Thomas .....Sumter
Manly Curry Turpin .....Virginia
Henry Edward Werner .....Texas

GRADUATES WITH HIGHEST HONOR.

Paul Shields Haley .....Walker
John Talbert Letcher .....Macon
Abram Hill Mitchell .....Lee

POST-GRADUATE DEGREE.

MASTER OF SCIENCE.

Idaline Bell	Lee
Emma Beall Culver	Lee
Charles Lewis Harold	Escambia
Mabel Heard	Lee
John William Jepson	South Carolina
Enoch Marvin Mason	Conecuh
James Richard Rutland	Chambers
Harvey Owen Sargent	Franklin

DISTINGUISHED STUDENTS.

DISTINCTIONS.

Students who receive a grade above 90 per cent. and less than 95 in three studies in the Freshman class, in four in the Sophomore class, in five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent. are awarded Certificates of Hignest Distinction.

JUNIOR CLASS.

DISTINCTION.

William Cruse Coles ..... Marshall
James Browder Garber ..... Hale
William Bulger Hamilton ..... Elmore
Gaston Joel Lipscomb ..... Marengo
Walker Dorr Willis ..... Florida

HIGHEST DISTINCTION.

Marvin Ellis ..... Morgan
James Allen Kyser ..... Dallas
Martin James Lide ..... Dallas
Richard Blount Shepard ..... Mobile
George Waddell Snedecor ..... Jefferson
John Eayres Davis Yonge ..... Florida

SOPHOMORE CLASS.

DISTINCTION.

Rush Pearson Burke ..... Montgomery
Dudley Chipley ..... Florida
Sidney Cornell ..... Jefferson
Howard Ellis Davis ..... Mobile
Thomas Joseph Dowdell ..... Montgomery
George Bridges Foss ..... Etowah

Roy Kauffman .....Mobile
Walter Joseph Knight .....Mobile
William Lawson Thornton .....Talladega

HIGHEST DISTINCTION.

None.

FRESHMAN CLASS.

DISTINCTION.

Julian Sidney Chambers .....Montgomery
James Henderson Childs .....Georgia
William Lawrence Dumas .....Mobile
James Buchanan Green .....Crenshaw
Chauncey Smith Joseph .....Montgomery
John McDuffie .....Monroe
Frederick Shealy Middleton .....Chambers
Fenton Forest Newman .....Talladega

HIGHEST DISTINCTION.

Frederick Emanuel Geibel .....Montgomery
John William McConnell .....Jefferson
William Martin Shepard .....Mobile
Berner Leigh Shi .....Georgia

SPECIAL STUDENTS.

DISTINCTION.

Ethel Julia Harwell .....Lee
Mollie Hal Hollifield .....Lee
Herbert McLeod .....Pike
Sallie Fleming Ordway .....Tennessee
Henry Sleeth Stickle .....Lauderdale

CATALOGUE OF STUDENTS.

FOR SESSION OF 1901-1902.

GRADUATE STUDENTS.

(Residence in Alabama when State is not given.)

Name.	*Residence.*
Herschel Winston Bass	St. Clair
Idaline Bell	Lee
Jesse Wright Boyd	Lee
Mary Wright Boyd	Lee
Thomas Bragg	Lee
Marion Lara Brown	Georgia
Emma Beall Culver	Lee
James Olney Goggans	Tallapoosa
Paul Shields Haley	Walker
Michael Smith Harvey	Lee
Arthur Flournoy Jackson	Georgia
James Baxter Jackson	Lee
Kate Meade Lane	Lee
John Talbert Letcher	Macon
Karl Edward Lindrose	Louisiana
Frederick Greenville Matthews	Lee
Abram Hill Mitchell	Lee
Augustus Young Napier	Lee
James Cochran Phelps	Lee
Matthew Scott Sloan	Mobile
Henry Edward Werner	Texas
Edward Houston Wills	Lee

UNDERGRADUATE STUDENTS.

SENIOR CLASS.

Oliver Hannibal Alford.....Marshall
William Marvin Askew .....Georgia
Frederick Cornelius Atkinson .....Dale
Charles Homer Billingsley .....Elmore
Edward Lambeth Carroll .....Florida
William Cruse Coles .....Marshall
Clyde Allen Collins .....Hale
Alpheus Mallette Davis .....Florida
Robert Geoghegan Dawson .....Montgomery
Jesse Duncan Elliott .....Minnesota
Marvin Ellis .....Morgan
James Douglas Farley .....Lee
Clarence Eugene Feagin .....Bullock
James Browder Garber .....Hale
Arthur Rodfer Gray .....Florida
Jeremiah Warren Gwin .....Jefferson
William Houston Gwin .....Jefferson
William Bulger Hamilton .....Elmore
Clifton Duane Haynie .....Lee
William Tillman Heard .....Lee
Dallas Tabor Herndon .....Henry
Mollie Hal Hollifield .....Lee
Franklin Jerome Houston .....Jefferson
Collins James Johnson .....Missouri
Morris Ketchum .....New York
Howard Malcolm Kilpatrick .....Georgia
Martin James Lide .....Dallas
Gaston Joel Lipscomb .....Marengo
Earle Irwin McBryde .....Wilcox
Thomas Michael McCarroll .....Florida
Henry Bigham Park .....Georgia
Douglass Welles Peabody .....Illinois

George Clement Sequiera ..... Nicaragua
Brady Wilkinson Steele ..... Autauga
Richard Blount Shepard ..... Mobile
Enrico Alfonso Washington ..... Georgia
John Osceola Webb ..... Coosa
Walker Dorr Willis ..... Florida
John Eayres Davis Yonge ..... Florida

JUNIOR CLASS.

Albert Miner Avery ..... Florida
Marshall Leonard Bize ..... Georgia
James Victor Blackwell ..... Calhoun
Stewart Dixon Brown ..... Henry
†Ryland Crews Bryant ..... Jefferson
Rush Pearson Burke ..... Montgomery
Robert Wright Cabaniss ..... Jefferson
Thomas Arthur Caddell ..... Etowah
†William Julius James Chase ..... Georgia
Dudley Chipley ..... Florida
William Hudmon Cooper ..... Lee
Sidney Cornell ..... Jefferson
Charles Sanders Culver ..... Lee
Howard Ellis Davis ..... Mobile
William Watson Davis ..... Mobile
William Wert Dinsmore ..... Morgan
Thomas Joseph Dowdell ..... Montgomery
†William Eugene Finch ..... Florida
George Bridges Foss ..... Etowah
George Fouche Freeman ..... Cherokee
William Lanier Halsey ..... Madison
Earnest Cecil Haynie ..... Lee
Bell George Hazard ..... Calhoun
Henry Hiden ..... Jefferson
George Bloise Hill ..... Talladega
Wilburn Hill ..... Etowah

† Not in full standing.

Alexander Grice Horn ..... Sumter
James Daughtry Hudson ..... Georgia
Roy Kauffman ..... Mobile
Walter Joseph Knight ..... Mobile
George Duncan Lesesne ..... Mobile
Percy McLean Marshall ..... Georgia
Winfield Scott Martin ..... Jefferson
John VanValkenburg Matthews ..... Madison
Robert Peyton Mims ..... Jefferson
John Harris Mitchell ..... Georgia
Thomas William Morgan ..... Jefferson
Frank Elmer Miller ..... Calhoun
Sallie Fleming Ordway ..... Tennessee
James Porter Paterson ..... Montgomery
†David Philips Pruett ..... Bullock
Wallace Powell Pruitt ..... Lowndes
†George Daniel Randle ..... Jefferson
John Patrick Rembert ..... Mississippi
Paul Rigney ..... Madison
William Richard Rison ..... Madison
Tod Hewitt Roberts ..... Jefferson
Carl Robinson ..... Tallapoosa
William Watson Rutland ..... Chambers
Clifford Philip Rutledge ..... Lee
Hans Schmidt ..... Jefferson
John Rice Searcy ..... Conecuh
Walter Otey Shivers ..... Perry
Edmund Rhett Taber ..... Montgomery
Edward Taylor ..... Marengo
Louis Earle Thornton ..... Florida
William Lawson Thornton ..... Talladega
Holmes Fielding Troutman ..... Georgia
Filo Harris Turner ..... Florida
William Micou Turnley ..... Elmore
Joseph Dorrah Walker ..... Jefferson
Henry Matthew Yonge ..... Florida

† Not in full standing.

SOPHOMORE CLASS.

Henry Alexander Allison ..... Sumter
William Leroy Alston ..... South Carolina
John Shillman Arnold ..... Florida
Frank Gordon Bell ..... Lee
John Ambrose Beckham ..... Lee
William Arthur Branan ..... Georgia
Jefferson Edward Brown ..... Jefferson
Andrew Duke Cameron ..... Macon
†Borden Montgomery Campbell ..... Greene
Emmett Tulane Camp ..... Etowah
Julian Sidney Chambers ..... Montgomery
Alan Armistead Chester ..... New York
James Henderson Childs ..... Georgia
Victor Hugo Clements ..... Limestone
William Shapard Dowdell ..... Lee
William Lawrence Dumas ..... Mobile
George Dunglingson ..... Talladega
Verlie Roy Emrick ..... Jefferson
Devotie Glover Ewing ..... Lowndes
Edwin Washington Ewing ..... Lowndes
Clarence Evelyn Field ..... Jefferson
Walter Summerville Going ..... Jefferson
James Buchanan Green ..... Crenshaw
Heyman Hagedorn ..... Georgia
Leonard Park Hall ..... Jefferson
Walter Leonidas Harwell ..... Lee
Guy David Hawkins ..... Jefferson
†John David Hudson ..... Lee
Charles Jefferson Jackson ..... Montgomery
Donald Van de Water Jenkins ..... Talladega
Walter Wier Johnston ..... Calhoun
Allen Green Jones ..... Dallas
Hilary Boston Jones ..... Washington
Chauncey Smith Joseph ..... Montgomery

† Not in full standing.

Isham Kimbell ..... Clark
Frank Ragan King ..... Jackson
Edward Philip Lacey ..... Jefferson
Harry Thomas Landrum ..... Jefferson
Tracy Lay ..... Etowah
Henry Richard Luscher ..... Mobile
Isaac Sadler McAdory ..... Jefferson
John William McConnell ..... Jefferson
John McDuffie ..... Monroe
Henry McDonnell ..... Madison
Thomas Pettus McElderry ..... Talladega
William Hugh McEniry ..... Jefferson
William Monroe Meredith ..... Greene
Arthur Wilhelm Merkel ..... Jefferson
Frederick Shealy Middleton ..... Chambers
William Pittman Moon ..... Coosa
Lee Penn Montgomery ..... Lee
Edward Owen Perry ..... Georgia
†Anderson Petrinovich ..... Mobile
Forney Renfro ..... Lee
Thomas Shepard Roche ..... Mobile
James Lon Robinson ..... Jefferson
Charles McPherson Rogers ..... Sumter
James Emmet Seale ..... Sumter
William Martin Shepard ..... Mobile
Berner Leigh Shi ..... Georgia
Washington Irving Shi ..... Georgia
Solomon Kauffman Simon ..... Marengo
†John Floyd Smith ..... Calhoun
Zachary Pope Smith ..... Jefferson
Paul Stewart ..... Jefferson
Joseph Churchill Strong ..... Mobile
John Randolph St. John ..... Mobile
Albert Lee Thomas ..... Lee

† Not in full standing.

Thornton Albert Ward ..... Lee
William Francis Ward ..... Lee
†Francis Hobbs Watson ..... Dallas
William Clifford Wear ..... Lee
Robert Eubank Williams ..... Jefferson
John Mayer Wilson ..... Clark
William Mason Wilson ..... Etowah
Cullen Haddley Wimberly ..... Sumter
John Washington Wood ..... Jefferson

FRESHMAN CLASS.

Hiram Victor Arnold ..... Florida
Eric Alsobrook ..... Lee
Franklin King Beck ..... Wilcox
Frederick Rudolph Bell ..... Lee
Theodore Chesbro Bowling ..... Washington
James Seaborn Boyd ..... Montgomery
Thomas Cobb Bradford ..... Lee
Samuel Davis Brown ..... Georgia
Sylvanus Burney ..... Chambers
Dugald Herbert Carmichael ..... Jefferson
†Frank Furness Cawthon ..... Dallas
Lambert Alexander Chambliss ..... Autauga
Lemuel Jackson Cobb ..... Cherokee
Lynn Lewis Conner ..... Macon
Balius Pinckney Cooper ..... Washington
Robert Cummins ..... Dallas
†Edward James Duncan ..... Tallapoosa
Robert Lee Ellis ..... Autauga
James Chester Elmer ..... Mississippi
Edgar Ervin Esslinger ..... Madison
†Claud Belle Etheredge ..... Dallas
Willis Marone Etheridge ..... Calhoun
Frank Trimble Evans ..... Georgia
Bertram Ezekiel ..... Butler

† Not in full standing.

Edgar Earl Ferrell ..... Greene
†John Heggie Findlay ..... Hale
Welham Humphrey Foy ..... Barbour
Mither William Francis ..... Randolph
†Benjamin Shields Gilmer ..... Choctaw
Frank Lovell Gonce ..... Tennessee
Edward Alexander Graham ..... Autauga
Edward Servanios Hitch ..... Georgia
†James Elliott Holt ..... Russell
Frank Parkinson Howard ..... Macon
Percy Wilbur Hudson ..... Lee
Frank Paul Hurt ..... Jackson
Charles Edwin Jackson ..... Madison
George Wallace Jackson ..... Lee
Frederick McClendon Jenkins ..... Georgia
Earl Eugene Jenks ..... Mobile
Arthur Dean Jones ..... Pike
Earl Kauffman ..... Mobile
Albert Roy Killebrew ..... Dale
Bertram Joseph Lane ..... Talladega
†McCloy Harding Martin ..... Lee
Coke Smith Matthews ..... Jefferson
Charles Whitaker May ..... Russell
George Elisha McCord ..... Jefferson
Richard McCulloh ..... Louisiana
Claude Cooper McLean ..... Covington
Louis Walton Montgomery ..... Lee
Harry Redwood Murray ..... Mobile
Cicero Lewis Nelson ..... Baldwin
John Haygood Paterson ..... Montgomery
Wert Horace Peace ..... Jefferson
John Henry Peebles ..... Limestone
Monroe Thomas Penn ..... Lee
Henry Clarence Perkins ..... Barbour

† Not in full standing.

John Ross Philips ..... St. Clair
George Wallace Postell ..... Jefferson
John Henry Powell ..... Lee
Marshall Gowan Price ..... Marengo
Francis Esten Purifoy ..... Wilcox
Frank Bellamy Rutledge ..... Lee
Robert Hyde Sanders ..... Hale
Walter Robert Samford ..... Lee
Batt Lockard Spain ..... Texas
Linwood Seale ..... Sumter
Marvin Pearce Summers ..... Lee
Grover Cleveland Thompson ..... Macon
John Edward Thigpen ..... Lowndes
Henry Howard Thornton ..... Talladega
William Biggers Tucker ..... Lee
Perry Williams Turner ..... Colbert
Charles Spurgeon Waldrop ..... Jefferson
Walter Van Weatherby ..... Mississippi
Elbert Fain Webb ..... Cherokee
Fletcher Gordon Webb ..... Lee
James Samuel Webb ..... Lee
Samuel Borders Wilson ..... Talladega
John Douglas Wilkins ..... Marengo
*Edward Louis Wright ..... Lee
Oliver Earle Young ..... Sumter

SPECIAL AND IRREGULAR STUDENTS.

Abbreviations: Ph—Pharmacy; E. & M. E.—Electrical and Mechanical Engineering; C.—Chemistry; Ag.—Agriculture; C. E.—Civil Engineering; Mech. A.—Mechanic Arts; E. E.—Electrical Engineering.

Bessie Susan Alvis ..... Lee
Ralph Calloway Armstrong ..Ph..... Lee
Robert Trammell Babgy ....C. E..... Lee
Martin Vanburen Beason...Mech. A ..... St. Clair
Herman Davidson Blake...Mech. A..... Florida

* Deceased.

Hyman Blumberg..... Chambers
William Bonner.....E. & M. E.....Wilcox
Marvin Fitzpatrick Boykin..... Lee
Charles Franklin Bradshaw..... Randolph
William Jefferson Bruister...Ag..... Choctaw
Frank Barnard Clark..... Mobile
Willis Gaylord Clark....E. & M. E.....Michigan
William Rather Coleman....C. E..... Colbert
Henry Denegre..... Jefferson
Woodson Lea Ennis.....Ag..... Sumter
Arthur Fincher .....Ph..... Lee
James William Flanagan....Ph..... Lee
Daisy Douglas Foster ..... Lee
Marcus Luculus Foster .....E. E..... Etowah
William Alexander Frazer...Ph ..... Lee
Charles Williams Gonce .....Tennessee
Alexander Hamilton Green .....Florida
Kernon Hugh Gaines..... Chambers
Leonard Graham Gresham.Mech. A.....Autauga
James Coulson Harper.....C. E.....Mississippi
Ethel Julia Harwell..... Lee
Robert Hinton Hogg..... Georgia
William Dana Hubbard..E. & M. E.....Dallas
Mell Frazer Jackson.....Ph..... Lee
John Sandford Jewett.....Ph ..... Florida
William Micou Jordan .....Ph.....Elmore
Walter Maurice Jones-
Williams .....E. E..... Lee
William Jackson Marsh....Ph.....Lee
Allen Davis McLain.....Ph..... Lee
Herbert McLeod .....Ph..... Crenshaw
Allen Massilon McNeel...E. & M. E.....Montgomery
George Newburg Montgomery..... Mobile
Jabez Curry Nelson.....C. E.....Jefferson

Fenton Forest Newman ..... Talladega
Louis Milton Noll.....Ph..... Jefferson
Albert Welman Pratt .....C..... Madison
Laurens Walter Pierce...E. & M. E.....Elmore
John Vincent Pierson.....C..... Perry
Oscar Early Rutland.....Mech. A.....Lee
William Harvey Robertson....Ph ..... Jackson
Benjamin Riley Sawyer..... Ph.....Calhoun
Edward Ramsey Scott .....Tennessee
Fletcher Porter Sewell.....Ag..... Cherokee
Rufus Pew Shuptrine.....Ph.....Dallas
Julian Cassius Smith.....E. & M. E.....Macon
Hunter Molton Smith.....E. E..... Jefferson
Robert Ware Sistrunk..... Elmore
Quinton Sorrell .....C..... Talladega
Cecil Pitts Stowe.....Ph..... Lee
Benjamin Walton Taylor .....Jefferson
Roy Lee Thornton.....Ph..... Bullock
James Feagin Tompkins....Ag.....Lee
Alma Cole Tompkins..... Lee
Conrad Lee Thompson..... Mobile
James Cooper Usrey.....Ph..... Jefferson
Fletcher Peavey Whatley..Mech. A.....Lee
Judson Franklin Webb.....C. E..... Lee
St. John Wilson..... Mobile
Walter Rivers Whitman.....Ph..... Lee
Abner Melvin Windham.....Ph..... Dale

SUB-FRESHMAN CLASS.

Leslie Sheldon Abercrombie .....Macon
Leo Abraham .....Montgomery
Thomas Eaton Alexander .....Marengo
Ignacio Alfonso .....Cuba
Otis DeWitt Alsobrook .....Lee
Thomas Henry Bass .....Butler

Walter Pendleton Bass ..... Butler
Conner Benbow ..... Crenshaw
Robert Leroy Bowling ..... Washington
Edwin Matherson Bragg ..... Lee
Edward Crawford ..... Florida
Charles Edward Crawford ..... Talladega
Benjamin Harris Cross ..... Lee
James Lile Cross ..... Lee
Shelby Montgomery Cullom ..... Jefferson
Benjamin Cropp Davis ..... Mobile
John Carter Detwiler ..... Montgomery
Walter Dean ..... Cullman
Pedro Echezabal ..... Cuba
George Hardaway Frazer ..... Lee
Raphael Garcia ..... Cuba
Edward Daniel Gates ..... Dallas
Raymond David Gillespie ..... Jefferson
Howard Wilson Going ..... Jefferson
William Minthon Goodger ..... Perry
Carlos Houghton ..... Cuba
Frank Brown Johnston ..... Dallas
Washington Cleveland Jones ..... Pike
Clyde White Jones ..... Bibb
Carter Wallace King ..... Florida
Michael King ..... Florida
Cornelius Malone ..... Greene
Ulysses Claud Martin ..... Dallas
Adalberto Masvidal ..... Cuba
John Quarterman McCaskill ..... Florida
Benjamin McMillan ..... Mobile
Frederick Augustus Miller ..... Covington
David Minge ..... Hale
William Leroy Mitchell ..... Lee
Vernon Moore ..... Hale
John Robbins Nettles ..... Monroe

James Hudson Otey ..... Perry
Thomas Henry Pattison ..... Lee
William Britain Powledge ..... Lee
Jesse Henry Pryor ..... Perry
Claude Hughes Scheiffelin ..... Mobile
Edward Cooper Smith ..... Georgia
Guy Clarence Stuart ..... Washington
Robert Wilson Trimble ..... Jefferson
Charles Winston Thompson ..... Macon
Carl Venable ..... Jefferson
Ross Myron Vest ..... Jefferson
James Pennington Vickers ..... Clark
Joaquin Nilo Vila ..... Cuba
Emique Vila ..... Cuba
Lee Anderson West ..... Perry
Willis Carter West ..... Perry
Dinnis Timothy Williamson ..... Covington

SUMMARY.

Graduate Students	22
Senior Class	39
Junior Class	62
Sophomore Class	77
Freshman Class	83
Special and Irregular Students	65
Total in College Classes	348
Sub-Freshman Class	58
Total	406

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	338	Geology	43
History	227	Civil Engineering	29
French	31	Electrical Engineering.	57
German	38	Mechanical Engineer'g.	55
Latin	101	Biology	12
Mental Science	8	Drawing	293
Political Economy	33	Mechanic Arts	267
Mathematics	333	Military Department.	378
Chemistry	156	Mineralogy	21
Chemical Laboratory.	146	Physical Laboratory.	46
Agriculture	97	Physiology	83
Physics	216	Veterinary Science	17
Botany	109	Pharmacy	41
Horticulture	17	Bacteriology	15

RESIDENCE BY STATES.

Alabama	333
Georgia	24
Florida	23
Cuba	6
Mississippi	4
Tennessee	4
Louisiana	2
Texas	2
Missouri	1
Michigan	1
Illinois	1
New York	2
Nicaragua	1
Minnesota	1
South Carolina	1
	406

MILITARY ORGANIZATION.

1901-1902.

President,
*W. L. BROUN.

Acting President,
O. D. SMITH.

Commandant,
COL. B. S. PATRICK.

Surgeon,
J. H. DRAKE.

Battalion Staff:

Cadet Captain W. D. WILLIS, Assistant to Commandant.
Cadet First Lieutenant, D. W. PEABODY, Adjutant.
Cadet Captain C. A. COLLINS, Quartermaster.
Cadet First Lieutenant M. KETCHUM, Assistant Adjutant.
Cadet Sergeant W. J. KNIGHT, Sergeant Major.
Cadet Sergeant L. E. THORNTON, Quartermaster Sergeant.

Cadet Captains:

1. J. E. D. Yonge.
2. J. B. Garber.
3. W. C. Coles.
4. H. B. Park.

Cadet First Lieutenants:

1. J. D. Farley.
2. F. J. Houston.
3. J. O. Webb.
4. W. B. Hamilton.
5. D. T. Herndon.
6. B. W. Steele.
7. E. A. Washington.
8. E. I. McBryde.

Cadet Second Lieutenant:

1. E. L. Carroll.

Cadet First Sergeants:

1. H. E. Davis.
2. W. W. Davis.
3. D. Chipley
4. H. M. Yonge.

*Died January 23, 1902.

Cadet Sergeants:

1. T. J. Dowdell.
2. A. M. Avery.
3. P. M. Marshall.
4. W. W. Rutland.
5. J. H. Mitchell.
6. W. L. Thornton.
7. E. Taylor.
8. W. W. Dinsmore.
9. J. D. Walker.
10. G. B. Hill, (Color Sergeant.)
11. P. Rigney.
12. R. P. Burke.
13. W. M. Turnley.
14. G. F. Freeman.
15. T. A. Caddell.
16. E. C. Haynie.
17. H. F. Troutman.

Cadet Corporals:

1. B. L. Shi.
2. J. H. Childs.
3. J. McDuffie.
4. F. S. Middleton.
5. W. L. Dumas.
6. C. S. Joseph.
7. W. M. Wilson.
8. J. L. Robinson.
9. T. Lay.
10. J. S. Chambers.
11. W. S. Going.
12. C. J. Jackson.
13. T. P. McElderry.
14. H. R. Luscher.
15. A. G. Jones.
16. W. L. Harwell.

THE A. P. I. CADET BAND.

M. THOMAS FULLAN, Bandmaster.

J. C. HARPER, Principal Musician.

R. C. Armstrong.
H. V. Arnold.
F. C. Atkinson.
A. M. Avery.
F. G. Bell.
H. Blumberg.
L. J. Cobb.
M. Ellis.
V. R. Emrick.
G. H. Frazer.
W. L. Harwell.
G. D. Hawkins.
H. Hagedorn.
J. D. Hudson.
A. W. Merkel.
G. N. Montgomery.
J. P. Rembert.
G. C. Sequiera.
S. K. Simon.
J. R. St. John.
E. R. Taber.
A. L. Thomas.
A. Petrinovich.
W. V. Weatherby.

Cadets of the graduating class who were reported to the Adjutant General, U. S. Army, for publication in the "Official Army Register" as having ranked highest in the Military Department:

1889.

A. St. Dunstan.
B. H. Crenshaw.
A. J. Burr.

1890.

F. D. Milstead.
J. W. Bivins.
G. W. Emory.

207894

1891.

L. E. Baker.
C. C. Johnson.
F. J. Bivins.

1892.

H. F. Dobbin.
A. L. Jones.
C. L. Brown.

1893.

Joel Dumas.
C. H. Smith.
J. F. Webb.

1894.

C. S. Andrews.
P. P. McKeown.
R. T. Dorsey.

1895.

S. L. Coleman.
H. H. Smith.
L. B. Gammon.

A. L. Alexander.
W. L. Fleming.

1897.

P. G. Clark.
G. M. Holley.
G. N. Mitcham.

1898.

A. H. Clark.
A. McB. Ransom.
John Haralson.

1899.

I. F. McDonnell.
A. H. Feagin.
T. W. Wert.

1900.

E.M . Mason.
H. P. Powell.
C. W. Nixon.

1901.

A. F. Jackson.
J. D. Foy.
P. S. Haley.

1896.

W. M. Williams.

REQUIREMENTS FOR ADMISSION.

All applicants for admission should present testimonials of good moral character, and those who come from other colleges must present certificates of honorable discharge.

To enter the Freshman class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography and History of the United States.

2. English —(a) English grammar as contained in any standard text. (b) An examination upon sentences containing incorrect English. (c) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar, and division into paragraphs.

(a) *Reading.* The composition of 1902 will be upon subjects drawn from one or more of the following works in English Literature: (1) Hughes's *Tom Brown at Rugby;* (2) Southey's *Life of Nelson;* (3) Shakespeare's *Julius Caesar;* (4) Longfellow's *Evangeline;* (5) Scott's *Ivanhoe;* (6) Shakespeare's *Merchant of Venice;* (7) Irving's *Sketch Book;* (8) Macaulay's *Essay on Milton;* (9) Scott's *Marmion;* (10) Dickens's *David Copperfield.*

The candidate will be required to present evidence of a general knowledge of the subject matter, and to answer simple questions on the lives of the authors. This part of the examination is intended only to test a general knowledge of the substance of the books.

(b) *Study and Practice.* This part of the examination presupposes the thorough study of the style of the work, and will be upon *Julius Caesar* and the *Essay on Milton.*

Preparation and examination on these works will be necessary before the student is classed as regular in any course.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers; the metric system; percentage, including interest and discount; proportion. (b) Algebra to quadratic equations; especial preparation is urged in *fundamental operations, factoring, multiples, divisors* and *fractions;* two books of geometry.

4. Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Cæsar, in addition to the above subjects.

In pronouncing Latin it is recommended that $\bar{a}$ be pronounced as in *father*, $\breve{a}$ as the *a* in *Cuba;* $\bar{e}$ as in *prey;* $\breve{e}$ as in *men;* $\bar{i}$ as in *machine*, $\breve{i}$ as in *cigar;* $\bar{o}$ as in *old;* $\breve{o}$ as in *obey;* $\bar{u}$ as in *rule;* $\breve{u}$ as in *full;* *j* as *y* in *yard;* *c* always as *k* in *king;* *g* always as *g* in *get.*

For admission to the higher classes, students should be prepared to stand satisfactory examination in all of the studies of the lower classes, as shown in the course of study. Students applying for admission to the sophomore class will be examined in mathematics through quadratic equations and logarithms in Algebra, and on seven books in geometry. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on these subjects.

It is absolutely essential that students who hope to succeed should be well grounded in Arithmetic, Algebra, and Geometry.

A working knowledge of the metric system should also be obtained.

ADMISSION ON CERTIFICATE.

Appicants will be admitted without examination on presenting a certificate from any of the CERTIFICATE SCHOOLS named herein.

The following educational institutions having made application to be correlated to this College and having presented an approved course of study, are hereby declared to be CERTIFICATE SCHOOLS, and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the fresh-
"man class *without examination* upon the certificate of the presi-
"dent or principal showing definitely that such students have
"completed satisfactorily all the studies required for admission, as
"stated in the catalogue and are otherwise admissible."

The privilege of admitting students of the Sophomore class on certificate will be granted only to those approved schools that have had a continuous existence for five years or more and have previously had pupils admitted to that class without conditions.

The following form of certificate will be used:

I hereby certify that A....., B.....has attended the (*name the school or academy*) for.....years and has studied the following subjects:

in History.....(*name the books*)
in English.....(*name the books*)
in Algebra.....(*state amount accomplished*)
in Geometry.....(*state amount accomplished*)
in Latin.....(*state books read*)
and having passed a satisfactory examination on these subjects as required in the Catalogue for admission to the .....class, I recommend him for the same.

Admission by certificate is regarded as provisional.

That is, though admitted to the class for which the certificate calls, the applicant may be required to take special examination in any subject in which his preparation proves unsatisfactory, or, after a fair trial, he may be dropped to a lower class, if he fails to maintain standing in the class to which he may be admitted.

CERTIFICATE SCHOOLS.

University Military School, Mobile .....J. D. Wright.
Verner Military Institute, Tuscaloosa.....W. H. Verner.
University School, Montgomery.....J. M. Starke.
Mt. Willing High School, Mt. Willing.....J. Knight.
State Normal School, Jacksonville.....C. W. Daugette.
Male Academy, Huntsville.....F. Puryear.
Furman Academy, Livingston .....L. A. Cockrell.
High School, Opelika .....J. M. Smallwood.
University Military School, Clanton .....E. Y. McMorries.
Eighth District Agricultural School, Athens.....M. K. Clements.
Sixth District Agricultural School, Hamilton.....G. A. Holley.
Eutaw Male Academy, Eutaw .....H. C. Horton.
Boys' High School, Anniston .....H. C. Gunnels.
Taylor's School, Birmingham .....W. P. Taylor.
University High School, Birmingham..I. J. White, M. B. Dickinson.
Fourth District Agricultural School, Sylacauga.....A. G. Seay.
Gaylesville High School .....John R. Ray.
Carrollton Academy .....L. V. Rosser.
Ninth District Agricultural School, Blountsville....J. A. B. Lovett.
Gadsden High School .....I. W. Hill.
Boyd High School, Ramer .....B. H. Boyd.
Dadeville High School .....J. D. Lane.
Prattville High School .....A. W. Holstun.
Eufaula High School .....F. L. McCoy.
Union Springs High School .....J. M. Sanders.
Montgomery High School .....C. L. Floyd.
Calera Academy .....C. C. Slaton.
Southern Agricultural School, Abbeville .....J. B. Murphy.
Barnes's School, Montgomery .....E. R. Barnes.
Jackson Agricultural School .....J. B. Murphy.
Spring Lake School .....W. C. Griggs.
Pensacola Classical School .....H. C. Armstrong.
Eufaula District Academy .....R. E. Brooks.

ADMISSION OF YOUNG WOMEN.

The privilege of becoming students in this college is granted by the Trustees to young women of mature mind and character, on the following conditions:

The applicant must be seventeen years of age, and if a candidate for a degree, be able to pass a satisfactory examination in each of the four subjects as named below.

If the applicant is a candidate for admission as a special or irregular student, she must be able to pass a satisfactory examination in two of the subjects named, and may be admitted at an age less than seventeen, with a resident of Auburn acting as guardian, if application is approved by the Faculty.

(a) In English—Proficiency in spelling and punctuation; Grammar (Lockwood-Whitney); Rhetoric (Lockwood's Lessons and Carpenter's Rhetoric); Scudder's Masterpieces of American Literature; Syle's From Milton to Tennyson.

For requirements in reading in literature see page 41.

(b) In History—Macy's Our Government; Chambers's History of the United States; Myers's General History.

(c) In Mathematics—Arithmetic; Algebra, including quadratic equations, logarithms and series; Plane and Solid Geometry; Plane and Spherical Trigonometry, as in Wentworth.

(d) In Latin—Grammar, including the forms and syntax; Jones's Latin Prose Composition; translation of selections from Cæsar, Nepos, Virgil, Cicero's Orations, Cicero's Letters, or the equivalent.

The equivalents of these subjects, as in above text-books, may be substituted.

Botany will constitute a required part of the general course for young women who are candidates for a degree.

When admitted, upon complying with the conditions above stated, they may enter upon the study of any subject taught in the College and join any class, for which, upon examination, they may be found qualified. The only condition imposed will be that they engage in earnest study, and attend the exercises regularly. They will board in the town with private families and attend college only at the hours of their exercises.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 10th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

CERTIFICATE SCHOOLS.

University Military School, Mobile .....J. D. Wright.
Verner Military Institute, Tuscaloosa.....W. H. Verner.
University School, Montgomery.....J. M. Starke.
Mt. Willing High School, Mt. Willing.....J. Knight.
State Normal School, Jacksonville.....C. W. Daugette.
Male Academy, Huntsville.....F. Puryear.
Furman Academy, Livingston .....L. A. Cockrell.
High School, Opelika .....J. M. Smallwood.
University Military School, Clanton .....E. Y. McMorries.
Eighth District Agricultural School, Athens.....M. K. Clements.
Sixth District Agricultural School, Hamilton.....G. A. Holley.
Eutaw Male Academy, Eutaw .....H. C. Horton.
Boys' High School, Anniston .....H. C. Gunnels.
Taylor's School, Birmingham .....W. P. Taylor.
University High School, Birmingham..I. J. White, M. B. Dickinson.
Fourth District Agricultural School, Sylacauga.....A. G. Seay.
Gaylesville High School .....John R. Ray.
Carrollton Academy .....L. V. Rosser.
Ninth District Agricultural School, Blountsville....J. A. B. Lovett.
Gadsden High School .....I. W. Hill.
Boyd High School, Ramer .....B. H. Boyd.
Dadeville High School .....J. D. Lane.
Prattville High School .....A. W. Holstun.
Eufaula High School .....F. L. McCoy.
Union Springs High School .....J. M. Sanders.
Montgomery High School .....C. L. Floyd.
Calera Academy .....C. C. Slaton.
Southern Agricultural School, Abbeville .....J. B. Murphy.
Barnes's School, Montgomery .....E. R. Barnes.
Jackson Agricultural School .....J. B. Murphy.
Spring Lake School .....W. C. Griggs.
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ADMISSION OF YOUNG WOMEN.

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The applicant must be seventeen years of age, and if a candidate for a degree, be able to pass a satisfactory examination in each of the four subjects as named below.

If the applicant is a candidate for admission as a special or irregular student, she must be able to pass a satisfactory examination in two of the subjects named, and may be admitted at an age less than seventeen, with a resident of Auburn acting as guardian, if application is approved by the Faculty.

(a) In English—Proficiency in spelling and punctuation; Grammar (Lockwood-Whitney); Rhetoric (Lockwood's Lessons and Carpenter's Rhetoric); Scudder's Masterpieces of American Literature; Syle's From Milton to Tennyson.

For requirements in reading in literature see page 41.

(b) In History—Macy's Our Government; Chambers's History of the United States; Myers's General History.

(c) In Mathematics—Arithmetic; Algebra, including quadratic equations, logarithms and series; Plane and Solid Geometry; Plane and Spherical Trigonometry, as in Wentworth.

(d) In Latin—Grammar, including the forms and syntax; Jones's Latin Prose Composition; translation of selections from Cæsar, Nepos, Virgil, Cicero's Orations, Cicero's Letters, or the equivalent.

The equivalents of these subjects, as in above text-books, may be substituted.

Botany will constitute a required part of the general course for young women who are candidates for a degree.

When admitted, upon complying with the conditions above stated, they may enter upon the study of any subject taught in the College and join any class, for which, upon examination, they may be found qualified. The only condition imposed will be that they engage in earnest study, and attend the exercises regularly. They will board in the town with private families and attend college only at the hours of their exercises.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 10th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the freshman class are admitted to the sub-college department, provided they are fifteen years of age, and are found after examination qualified to profit by the instruction given. Those who, after admission, are inattentive to their studies, and neglectful of their duties will be required to withdraw, but those who are studious and make sufficient progress will be advanced to full admission to the freshman class when they are qualified to pass satisfactorily the required examinations.

Students, upon their arrival at Auburn, will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of electing studies in the lower classes is not granted to young students nor to their parents.

The Faculty will assign a student, on admission, to that class of a prescibed course for which he is qualified; and for special reasons, approved by the Faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age that are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study for which they may be qualified.

For an applicant to enter upon the study of Electrical and Mechanical Engineering as a special or irregular student, he must have studied algebra through quadratics and logarithms, plane geometry, and plane trigonometry.

The professor in charge of a department will decide by examination whether a special student is prepared for admission to his class.

A student who does not take all the studies in a class of one of the degree courses, as prescribed in the catalogue, and is permitted to take an irregular course, will be assigned to a member of the Faculty, who will act as his special adviser, and when his course of study has been approved by the Faculty, no other change will be permitted without the endorsement of his adviser.

Regular students who fail to pass satisfactory final examinations in any one study become irregular students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students, candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

ADMISSION TO HIGHER CLASSES.

At the beginning of each term a student in the sub-freshman class may, on application approved by the Faculty, be examined for admission to the freshman class in history, English, mathematics, and be admitted to the freshman class in that subject only.

Students who have completed satisfactorily all the studies of the sophomore class, as prescribed in the catalogue, in any one of the regular degree courses, can enter, without condition, the junior class in any course, except in the general course, or the course in pharmacy, in which Latin is required.

Students who are admitted to the junior class from other institutions, on examinations in English, Latin, and mathematics, and who have not completed all the studies of the sophomore class, in order to graduate, will be required to complete the course in chemistry and history as taught in the sophomore class.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical, and Natural Sciences, with their applications; Agriculture; Biology; Mechanics, Astronomy, Mathematics; Drawing; Civil, Electrical, and Mechanical Engineering; Physiology and Veterinary Science, Pharmacy; English, French, German and Latin Languages; History, Political Economy; Mental and Moral Sciences.

The studies are arranged in regular courses so as to offer liberal and practical education as a preparation for the active pursuits of life.

There are six degree courses for undergraduates, each leading to the degree of Bachelor of Science, (B. Sc.) and requiring four years for its completion.

I. COURSE IN CHEMISTRY AND AGRICULTURE.
II. COURSE IN CIVIL ENGINEERING.
III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.
IV. GENERAL COURSE.
V. COURSE IN PHARMACY.
VI. COURSE IN CHEMISTRY AND METALLURGY.

There are also three partial courses, each requiring two years for its completion:

VII. TWO-YEAR COURSE IN AGRICULTURE.
VIII. TWO-YEAR COURSE IN MECHANIC ARTS.
IX. TWO-YEAR COURSE IN PHARMACY.

Course I. includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture or chemical pursuits.

Course II. includes the principles and applications of the sciences that directly relate to civil engineering,

and is adapted to those who expect to enter that profession.

Course III. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged for the profession of electrical and mechanical engineering.

Course IV. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching or in some commercial or professional business.

Course V. includes, besides the general education of course IV. in the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course VI. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in the scientific branches relating thereto. Students taking this course also pursue the study of German and French during the Junior and Senior years, and are thus prepared to utilize for reference the scientific journals and works published in those languages.

Courses VII. VIII. IX. have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, will be awarded a certificate of proficiency in said subject.

Students who complete either of the two-year courses will, on

passing a satisfactory examination, receive certificates indicating their attainments.

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every candidate for a degree will be required to stand this special examination during the second term of the Senior year.

Declamations and themes or orations are required of all regular students pursuing courses leading to a degree.

POST-GRADUATE COURSES.

A more extended post-graduate course of study may be taken by a graduate of this College or of any other institution of equal grade. The completion of a course which leads to a post-graduate degree of Master of Science requires one year's residence at the College, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the Faculty.

The candidate must also present to the Faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination, at the close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the Faculty.

The subject of the thesis must be submitted to the Faculty for approval prior to January 1st, and the thesis given to the professor by May 1st.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the general regulations as other students, and pay the same fees, but are exempt from all military duty.

The following courses are prescribed for the degree named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the Faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and Chemistry.

3. *Master of Science in Civil Engineering.*—Civil Engineering, Mathematics, Analytical Mechanics.

4. *Master of Science in Electrical and Mechanical Engineering.*—Electrical Engineering, Mechanical Engineering.

5. *Master of Science in Mining Engineering.*—Students who have receive the degree of B. Sc. in engineering, civil, or electrical and mechanical, or in the course of chemistry and mettallurgy, or who have prosecuted an equivalent course of study, can enter upon a special course of mining engineering, which includes the following subjects of study:

Industrial Chemistry, Analytic Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, with practical work in the field, Mining Machinery with the applications of steam and electricity to the various operations connected with the exploitation of mines.

The student, if a candidate for a degree, will also be required to prosecute the necessary studies in that course of engineering in which he has not graduated. This course of study will be under the charge of the professors in the different engineering departments, the professor of Chemistry, and the professor of Mineralogy and Geology.

Special Students in Post-Senior Studies.—Students who are not graduates, but are qualified in special subjects to prosecute post-senior studies, and desire to prepare themselves more thoroughly for professional or special work in any one of the departments of engineering, in chemistry or pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the Faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given the same year.

PROFESSIONAL DEGREES.

The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Mining Engineer, or Pharmaceutical Chemist will be given two years after receiving the degree of Master of Science, provided the intervening time of two years has been spent in a responsible position in practical engineering work in that department in which he received the degree of Master of Science, or in practical pharmacy, and an approved thesis is submitted to the Faculty, with a report of the character of the work done.

SPECIAL ONE-YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting

in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of scientific agriculture.

PHOTOGRAPHY.

During the session there will be given by Professor Mell a course of twelve lectures on photography. This course will be elective, and the instruction will be open to any student that may desire to learn how to make pictures. It will be necessary for each student to provide himself with an outfit that will cost from $11.50 to $16.00.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this Institute, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CHEMISTRY.
II. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.
III. AGRICULTURE.
IV. BOTANY.
V. MINERALOGY.
VI. BIOLOGY.
VII. TECHNICAL DRAWING.
VIII. MECHANIC ARTS.
IX. PHYSICS.
X. ELECTRICAL ENGINEERING.
XI. MECHANICAL ENGINEERING.
XII. PHYSIOLOGY AND VETERINARY SCIENCE.
XIII. PHARMACY.

NOTE.—Special work in English or History may be taken by students in the general course as a substitute for laboratory work.

I. COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
3. Drawing.	3. Drawing.	3. Drawing.
2. Physiology.	2. Physiology.	2. Physiology.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	2. Horticulture.
4. Botany (Lab'y.)	4. Botany (Lab'y.)	4. Botany (Lab'y.)
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
2. Clinical Lab'y.	2. Clinical Lab'y.	2. Clinical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science (d).	2. Mental Science (d).	2. Mental Science (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
5. Biology.	5. Biology.	5. Biology.
2. Agricultural Chemis.	2. Agricultural Chemis.	2. Agricultural Chemis.
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
2. Clinical Lab'y.	2. Clinical Lab'y.	2. Clinical Lab'y.

(a) Begins March 1st. (b) Also Practical Agriculture.
(c) Begins Feb. 15th. (d) French or German may be substituted.

II. COURSE IN CIVIL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture (b).	2. Agriculture (b).	2. Agriculture (b).
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y. Mechanic Arts (c).	6. Lab'y. Mechanic Arts (c).	6. Lab'y. Mechanic Arts (c).
1. Field Work, Engineering.	1. Field Work, Engineering.	1. Field Work, Engineering.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature, (d).	2. Political Economy, (d).	2. Political Economy, (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.

(a) Begins March 1st.
(b) For Agriculture may be substituted Physical Laboratory.
(c) Or Mineralogy.
(d) For Eng. Lit. and Pol. Econ. may be substituted for French or German.

5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
4. Mech. Eng., Lab'y. Field Work, Engineering.	4. Mech. Eng., Lab'y. Field Work, Engineering.	4. Mech. Eng., Lab'y. Field Work, Engineering.

III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week. In Freshman and Sophomore classes the same studies are prescribed as in Course II in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
4. Electrical Engineering.	4. Electrical Engineering.	4. Electrical Engineering.
3. Mechanical Engineering.	3. Mechanical Engineering.	3. Mechanical Engineering.
4. Mechanical Drawing.	4. Mechanical Drawing.	4. Mechanical Drawing.
4. Electrical Lab'y.	4. Electrical Lab'y.	4. Electrical Lab'y.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. Eng. Literature, (a).	2 Political Economy, (a).	2. Political Economy, (a).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Electrical Engineering.	5. Electrical Engineering.	5. Electrical Engineering.
5. Mechanical Engineering.	5. Mechanical Engineering.	5. Mechanical Engineering.
2. Electrical Designing.	2. Electrical Designing.	2. Electrical Designing.
6. Electrical Lab'y.	6. Electrical Lab'y.	6. Electrical Lab'y.
4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.
1. Military Science.	1. Military Science.	1. Military Science.

(a) French or German may be substituted.

IV. CHEMISTRY AND METALLURGY.

The numerals opposite the subjects indicate the number of hours per week. In the Freshman class and Sophomore classes the same studies are prescribed as in either course I in Agriculture and Chemistry or in course V in General Course.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Organic Chemistry.	2. Organic Chemistry.	2. Organic Chemistry.
3. German.	3. German.	3. German.
4.*Mineralogy (Lab'y.)	4. Mineralogy (Lab'y.)	4. Mineralogy (Lab'y.)
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English and Literature.	2. Political Economy.	2. Political Economy.
2. Physics.	2. Physics.	2. Astronomy.
3. German.	3. German.	3. German.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
2. Metallurgy and Engineering Chem.	2. Metallurgy and Engineering Chem.	2. Metallurgy and Engineering Chem.
1. Analytical Chemisty.	1. Analytical Chemisty.	1. Analytical Chemisty.
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.

V. GENERAL COURSE.

The numbers opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
3. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	2. Agriculture.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	3. Drawing.
3. Military Drill.	3. Military Drill.	6. Mechanic Art Lab'y.
		3. Military Drill.

*Mechanic Art. Lab. may be substituted.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Gen'l. Chemistry.	3. Gen'l. Chemistry.	3. Gen'l. Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
3. Latin.	3. Latin.	3. Latin.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y. Work (b).	6. Lab'y. Work (b).	6. Lab'y. Work (b).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English.	2. Pol. Econ. (c).	2. Political Economy.
2. Mental Science.	2. Mental Science.	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Frencn.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science.	1. Military Science.
6. Lab'y. Work (b).	6. Lab'y. Work (b).	6. Lab'y. Work (b).

VI. COURSE IN PHARMACY.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

(a) Begins March 1st. (b) The student may elect the laboratory of any department for which he may be qualified. (c) Begins Feb. 15

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Gen'l Chemistry.	3. Gen'l Cnemistry.	3. Gen'l Chemistry.
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. Physics.	3. Physics.	3. Physics.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Botanical Lab'y.	4. Botanical Lab'y.	4. Botanical Lab'y.
3. English (b).	3. English (b).	3. English (b).
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
9. Pharmaceutical Lab.	9. Pharmaceutical Lab.	9. Pharmaceutical Lab.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Biology.	5. Biology.	3. Biology.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Toxicology.
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
12. Pharmaceutical Lab.	12. Pharmaceutical Lab.	12. Pharmaceutical Lab.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Science.	1. Military Science.	1. Military Science.
3. Materia Medica.	3. Materia Medica.	3. Bacteriology.

VII. TWO-YEAR COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Laby.	6. Mechanic Art Laby.	6. Mechanic Art Laby.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	3. Drawing.	3. Drawing.
12. Mechanic Art Lab.	12. Mechanic Art Lab.	12. Mechanic Art Lab.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) Begins March 1st. (b) French or German may be substituted.

VIII. TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Gen'l. Chemistry.	3. Gen'l. Chemistry.	3. Gen'l. Chemistry.
4. Agriculture.	4. Agriculture.	4. Agriculture.
2. Physiology.	2. Physiology.	2. Physiology.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
12. Practical Agriculture.	12. Practical Agriculture.	12. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

IX. TWO-YEAR COURSE IN PHARMACY.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
3. Gen'l. Chemistry.	3. Gen'l. Chemistry.	3. Gen'l. Chemistry.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. English.	3. English.	3. Botany.
2. Physiology.	2. Physiology.	2. Physiology.
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
6. Mechanic Art Lab'y (a).	6. Mechanic Art Lab'y (a).	6. Mechanic Art Lab'y (a).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
5. Pharmacognosy.	5. Pharmacognosy.	5. Pharmacognosy.
12. Pharmaceutical Lab'y.	12. Pharmaceutical Lab'y.	12. Pharmaceutical Lab'y.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Toxicology.
3. Materia Medica.	3. Materia Medica.	3. Bacteriology.
6. Botanical Lab'y.	6. Botanical Lab'y.	6. Botanical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) or Physical Laboratory.

SCHEDULE OF EXERCISES.

HOURS	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
I. 8–9	4. Algebra. 3. Latin. 2. Pharmacy. 2. Mec. Engineer'g. 1 and 2. Drawing. 1. Elec. Enginer'g. 1. Biology. 1. German.	4. Geometry. 3. Agriculture. 3. Latin. 2. German. 2. Botany. 1 and 2. Drawing. 1. Elec. Engineer'g. 1. Mental Science.	4. Algebra. 3. Latin. 2. Pharmacy. 2. Vet. Science. 2. Mec. Engineer'g. 1. Biology. 1 and 2. Drawing. 1. Elec. Engineer'g. 1. German.	4. Geometry. 3. Latin. 2. German. 2. Botany. 2. Mec. Engineer'g. 1 and 2. Drawing. 1. Mental Science. 1. Elec. Engineer'g.	4. Algebra. 3. Latin. 2. Pharmacy. 2. Veterinary Sci. 1 and 2. Drawing. 1. Biology. 1. Elec. Engineer'g. 1. German.	Exercises in Elocution.
II. 9–10	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Elc. Engineer'g. 2. Latin. 1. Calculus. 1. Biology (Lab.)	4. History. 3. Physiology. 2. Civ. Engineer'g. 2. Elc. Engineer'g. 2. Botany. 1. Chemistry. 1. French.	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Elc. Engineer'g. 2. Latin. 1. Calculus. 1. Vet. Science. 1. Pharmacognosy.	4. History. 3. Agriculture. 2. Civ. Engineer'g. 2. Botany. 2. Elc. Engineer'g. 1. Chemistry. 1. French.	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Latin. 2. Mec. Drawing. 1. Calculus. 1. Vet. Science.	Military Drill.
III. 10–11	3. English. 2. Physics. 1. Civ. Engineer'g. 1. Biology (Lab.) 1. Latin. 1. Mec. Engineer'g.	4. English. 3. Botany, (2, 3.) 3. History (1, 2.) 2. French. 2. Mec. Drawing. 1. Machine Design. 1. Pharmacognosy. 1. Biology. 1. Civ. Engineer'g. 1. Mec. Engineer'g.	3. English. 2. Physics. 1. Latin. 1. Civil Engineer'g. 1. Biology. 1. Mec. Engineer'g.	4. English. 3. History (1, 2.) 3. Botany, (2, 3.) 2. French. 1. Civ. Engineer'g. 1. Mec. Engineer'g. 1. Machine Desi'g. 1. Pharmacognosy.	3. English. 2. Physics. 1. Civ. Engineer'g. 1. Pharmacognosy. 4. History (3.) 1. Mec. Engineer'g.	Mechanic Arts. Chemical Lab'y. Electrical Lab'y. Physical Lab'y. Veterinary Clinics. Field Engineer'g.

SCHEDULE OF EXERCISES—Continued.

HOURS	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
IV. 11–12	4. Physics. 4. Mechanic Arts. 4. Agriculture (3.) 4. Latin (1, 2.) 3. Drawing. 2. Mathematics. 2. Chemistry. 2. Pharmacognosy. 1. English (1, 2.) 1. Pol. Econ. (2, 3).	4. Latin. 3. Drawing. 2. Horticulture. 2. Mathematics. 2. Chemistry Agr. 2. Pharmacognosy. 1. French. 1. Physics.	4. Physics (1, 2.) 4. Latin (3.) 4. Mechanic Arts. 3. History (1, 2.) 3. Botany (2, 3.) 2. Mathematics. 2. Chemistry. 2. Pharmacognosy. 1. English (1, 2.) 1. Pol. Econ. (2, 3.)	4. Latin. 3. Physiology. 2. Horticulture. 2. Mathematics. 2. Chemistry Ag. 1. French. 1. Physics.	4. Physics (1, 2.) 4. Mechanic Arts. 4. Agriculture (3). 4. Latin (1, 2.) 3. Drawing. 2. Mathematics. 2. Chemistry. 2. Pharmacognosy. 1. Military Science.	1. Pharmaceutical Lab'y. 3. Mechanic Arts. Chemical Lab'y. Electrical Lab'y. Physical Lab'y. Veterinary Clinics. Field Engineer'g.
V. 12–1	4. Drawing. 4. Mechanic Arts. 3. Mathematics. 2. English. 1. Elec. Design'g. 1. French. 1. Pharmacy. 1. Eng. Chem. and Metallurgy.	3. Mathematics. 2. English. 1. Geology. 1. Pharmacy.	4. Drawing. 4. Mechanic Arts. 3. Mathematics. 2. German. 2. Anal. Chemist'y. 1. Pharmacy. 1. Eng. Chem. and Metallurgy. 1. Elec. Designing.	3. Mathematics. 2. English. 1. Geology. 1. Pharmacy.	4. Drawing. 4. Mechanic Arts. 3. Mathematics. 2. Military Tactics. 1. Elec. Designing. 1. Pharmacy.	3. Mechanic Arts. Chemical Lab'y. Electrical Lab'y. Physical Lab'y. Veterinary Clinics. Field Engineering.
P. M. VI, VII 2–4	4. Mechanic Arts. 3. Field Work Agr. 1 & 2 Lab. Chemistry. 1 & 2 Field Work Engineering. 1 & 2 Mach. Work. Elec. Lab. Work. Physical Laby.	3. Mechanic Arts. 2. Mineralogical Lab. Military Drill (*) 1. Mech. Lab'y. Elec. Lab'y. Work. 1 & 2 History.	4. Mechanic Arts. 3. Field Work. Agr. 1 & 2 Laby. Chem. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Ex'cis in Elocut'n. Elec. Lab. Work. Physical Laby.	3. Mechanic Arts. 2. Mineralogical Lab. Military Drill (*). 1. Mech. Lab'y. Elec. Lab'y. Work. 1 & 2 History.	4. Mechanic Arts. 3. Field Work Agr. 2. French. 1 & 2 Lab. Chem. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Ex'cis. in Elocut'n. Elec. Lab. Work. Physical Lab'y.	

Chapel services daily at 7:45 a. m. * From 4:30 to 5:30 p. m.
Numbers prefixed denote classes—1 denotes senior, 2 junior, etc. Numbers affixed—(1), (2), (3), denote terms.

DEPARTMENTS OF INSTRUCTION.

MATHEMATICS.

PROFESSOR SMITH,

ASSOCIATE PROFESSOR CRENSHAW.

INSTRUCTOR PATRICK.

The subjects taught in the different classes in this department are as follows:

FRESHMAN CLASS. Algebra through quadratic equations and series, geometry (seven books Wentworth), original solutions of exercises.

SOPHOMORE CLASS. Solid geometry, plane and spherical trigonometry, surveying, mensuration.

JUNIOR CLASS. Analytical geometry, descriptive geometry, differential calculus.

SENIOR CLASS. Differential and integral calculus.

Two objects are sought to be obtained: First, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical apppplications.

Theoretical and practical instruction is given to the sophomore class in land surveying, mapping, plotting and computing areas, etc., also in the theory, adjustment and use of instruments.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

The completion of this course, common to all students, lays the foundation for the pure and applied mathematics of the mechanical and engineering courses.



BOTANICAL LABORATORY.

Analytical geometry, descriptive geometry, and calculus are pursued in the engineering courses. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of the principles and formulas.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Wentworth's Trigonometry, Robbins' Surveying, Wentworth's Analytical Geometry, Faunce's Descriptive Geometry, Taylor's Calculus, Johnson's Differential Equations, Osborne's Problems, Peck's Determinants.

GEOLOGY AND BOTANY.

PROFESSOR MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other natural deposits of minerals in the State. Mineral springs, the origin of ore deposits, and the geological relations of soils are carefully studied.

There is also a course of advanced work in practical geology for post-graduate students. This subject is pursued by applicants for the degrees of master of science and mining engineer.

The junior classes in civil and mining engineering, chemistry and metallurgy, study mineralogy through the entire session. This work consists of a thorough course in blow-pipe analysis of the ordinary minerals, and lectures upon crystallography, with instruction how to measure crystals and determine the physical con-

stants of minerals. An effort is made to familiarize the student with all the economic ores and the rocks entering into the composition of soils.

Botany.—The students of the sophomore class begin the study of botany the first of March, and continue it through the remainder of the session. Careful experiments are conducted in the lecture room explaining the formation and germination of seed, the growth into the mature plant, and the various functions performed by the plant in its development. Each student is required to keep careful notes illustrated with drawings of the various organs of the plant under examination. A limited amount of work is done in classification and nomenclature.

In the junior class, in the course of chemistry and agriculture, two terms are devoted to systematic and structural botany, and to advanced laboratory work with the microscope in the preparations of specimens showing plant structure; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microsopes of the most improved patterns, and all necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students.

The third term is devoted to the study of physiology of plants in order to understand the functions of the various organs after completion of the work in the histological laboratory.

FACILITIES FOR WORK.

Geology.—The department is equipped with models of Mount Shasta, the earthquake of 1887 in Japan, glass crystals for teaching crystallography; charts and maps of the geology of America and Europe; Colt's lantern complete with oil, oxy-hydrogen and automatic electric lamps; a large assortment of fine lantern slides representing geological formations in this country and abroad; well

equipped mineralogical laboratory for thirty students, supplied with a collection of representative minerals, and models of crystals.

Botany.—The facilities for teaching this subject are as follows: Auzoux's clastic models of seeds and flowers; a large collection of pressed plants of Alabama and other sections mounted and catalogued. There is also a laboratory for practical work in botany equipped with slate-topped tables for twenty-eight students; dissecting and compound microscopes of Zeiss, Leitz, and Bausch & Lomb; projection microscopic apparatus; microtomes by King and Bausch & Lomb; all the necessary glassware and smaller dissecting instruments required in a well equipped laboratory. The Zeiss compound microscope used by the professor for experiment work in connection with the station is supplied with Abbe's illuminating apparatus, slide changers, Abbe's camera lucida, polarizers, apochromatic objectives (16mm, 8 mm, 4mm, and homogeneous immersion), oculars (2, 3, 8, 12, 18), and photographic eye-pieces with micrometer. This laboratory is well lighted with gas and electricity and with a good exposure for ample sunlight.

In connection with the department there is a photographic darkroom and an excellent photographic outfit, consisting of cameras varying in size from 4x5 to 6½x8½ inches; Bausch & Lomb's professional photo-micro camera extending to eight feet; Zeiss's anastigmat photographic lens, 6½x8½, fitted with Bausch & Lomb's diaphragm shutter and Zeiss's wide angle lens, 6½x8½, all mounted in aluminum; Clark's lens fitted with diaphragm shutter; the accessory apparatus and chemicals required for first-class work in photography.

The students have access to the botanical garden where experiments in grass culture and many other plants of interest to the farmer are conducted by the professor.

TEXT-BOOKS.

LeConte's Geology, Tarr's Economic Geology, Dana's Mineralogy, Crosby's Tables for Determining Minerals, Bergen's Botany, Mell's Laboratory Guide, and notes of lectures.

CIVIL ENGINEERING AND DRAWING.

PROFESSOR LANE.

ASSISTANT HALEY.

The special studies in this department begin in the junior class, and require a good knowledge of algebra, geometry, trigonometry, and analytical mechanics. They are as follows:

Junior Class.—Simple, compound, reversed and parabolical curves, turn-outs and crossings, leveling, gradients, setting slope stakes, etc.

Special attention will be paid in this class to the location, construction, drainage and maintenance of country roads; and the various pavements and foundations for the same.

Senior Class—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought iron, steel and other metals; limes, cements, mortars and their manufacture; paints and other preservatives; classification of strains and a general mathematical discussion of same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds, their construction and strains determined mathematically and graphically; common roads, their coverings, and location, and construction of railroads; navigable, irrigation and drainage canals; rivers and seacoast improvements.

Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior Class—Henck's Field Book for Railway Engineers and Byrne's Highway Construction.

Senior Class—Wheeler's Civil Engineering and Von Ott's Graphic Statics.

DRAWING.

All of the students of the freshman and sophomore classes are required to take drawing; but only the students in civil engineering in the junior and senior classes.

The freshman class is taught linear and free-hand drawing. The sophomore class is instructed in the principles of orthographic and isometric projections, shades, shadows, perspective and tinting. In the junior class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and tinting; also sketches of tools and machines, plans and elevations and cross-sections of buildings, and blue-prints. The senior class makes topographical drawings and drawings of machines, roofs, bridges, etc., to different scales, and blue-prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Freshman Class—Kitchener's Geometrical Note Book, Webb, Ware & Zaner's Practical Freehand Drawing.

Sophomore Class—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior Class—Davidson's Building Constructions, Davidson's Drawing for Mechanics and Engineers, plates belonging to the college, Keuffel & Esser's Alphabet.

Senior Class—French, English and American plates belonging to the college, Keuffel & Esser's Alphabet.

ENGLISH AND POLITICAL ECONOMY.

PROFESSOR THACH.

PROFESSOR WIATT.

ASSISTANT SCROGGS.

ASSISTANT LETCHER.

OBJECTS AND METHODS.

In this department the students pursue a systematic course in the English language and literature.

Language is the avenue of approach to all knowledge; the interpretation of words is the fundamental process in education of whatsoever kind. A full course in English is, therefore, considered especially important in the technical courses of study that do not include the ancient classics. Accordingly, the course in English is continued throughout the four years of the college curriculum, three hours a week, and is made obligatory upon all students, with the exception of those pursuing the first two years of the course in Latin. In this extended drill in the grammar and literature of the English language, the endeavor is made to afford a training somewhat equivalent to the ordinary course in the classical languages.

In view of the ill preparation in languages, especially in their mother tongue, exhibited by many of the candidates for admission to the freshman class, it is deemed advisable, for the sake of honest work, to devote a portion of the first year to grounding such students in the principles of grammar.

Especial attention is given to the study of the writings themselves of leading English authors, since direct contact with literature is considered more profitable than information merely *about* literature.

All students before classed as regular in any course leading to a degree must conform to all the requirements in English for admission as set forth on page 41.

For requirements as to thesis and as to proficiency in English for certificates and degrees see pages 49, 50, and 109.

Declamation and themes (or orations) are required of *all regular* students. For details see below.

COURSES OF STUDY.

Freshman Class—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied; study of American authors; Irving, Hawthorne, Holmes, Poe, Bryant, Longfellow.

Swinton's English Grammar, Lockwood's Rhetoric, Kellogg & Reed's English Language.

Sophomore Class—Three hours a week; study of style, analysis of selections of prose and poetry; frequent essays on historic and literary themes.

G. R. Carpenter's Rhetoric, Genung's Rhetorical Analysis, Syle's From Milton to Tennyson.

Junior Class—Three hours a week; lectures on the history of English literature, critical study of English classics, essays.

Pancoast's History of English Literature; Pancoast's Standard English Poems, Macaulay, Carlyle, DeQuincey, etc.

Senior Class—Two hours a week, first term. Principles of Criticism, Shakespeare's Julius Cæsar, Hamlet, etc., Dowden's Shakespeare, etc.

THEMES AND ORATIONS.

Theory without practice is as fruitless in the study of English as in any other department of study. Practical work is indispensable to the successful teaching of English.

Besides numerous brief papers illustrative of the subject matter of the text-books, set themes or orations are *required of all students*: For the freshman class, *ten* themes a year; *ten* for the sophomore; for the senior and junior classes, *three* orations each.

DECLAMATION.

The old practice of committing pieces to memory for "speaking" is cultivated as a means, both of training in the art of thinking on the feet, and of storing the mind with the diction of finished specimens of English style.

The sophomore class is heard weekly throughout the year in sections of ten, once for an hour and a half in rehearsal, afterwards in the study-hall before the body of students.

The senior and junior classes also deliver their orations in public.

PHILOSOPHY AND POLITICAL ECONOMY.

The senior class pursues the study of intellectual science, twice a week, through the year; and political economy twice a week, during the last two terms. The instruction in this department is by lectures in combination with text-books.

Intellectual Science—Psychology defined. Value in relation to moral culture, education and Natural Sciences. The relation of the soul to matter. The arguments of the Materialist. Counter arguments. The Faculties of the Soul. The nature of Consciousness. Sense Perception. Fancy. Imagination. Nature of Conceptions. Language. Judgment. Reasoning. Deduction. Induction, etc. *Porter's Intellectual Science.*

Politiçal Economy—Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades-union; tariff; education, etc. *Lectures by Professor. Ely's Outlines of Economics.*

A Post-graduate course has also been established in English. The following courses have been given:

(1) *Shakespeare*—Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV., Part I., Richard III., King John.

(2) *Dryden—Poetical Works* (Christie); *Essay on Dramatic Poesy* (Thomas Arnold); *Essay on Satire, etc.*, (Yonge); Saintsbury's *Life of Dryden.*

Pope—Poetical Works (Ward); *Satires* (Pattison); Stephen's *Life of Pope*, Gosse's *From Shakespeare to Pope* and *18th Century Literature.*

(3) *English Literature of the Eighteenth Century*: Addison Pope, Gray, Goldsmith, Burns, Cowper, Burke.

(4) *American Literature*: Longfellow, Lowell, Poe.

(5) *The Rise and Development of the English Essay*: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(6) *Milton—Poetical Works* (Masson); Life, Patisson, Brooke.



CHEMICAL LABORATORY (INTERIOR).

CHEMISTRY.

PROFESSOR ROSS.

ASSISTANT PROFESSOR HARE.

INSTRUCTOR PHELPS.

Instruction in this department embraces—

1. A course of lectures in general chemistry.

2. A course of lectures in industrial and engineering chemistry.

3. A course of lectures in organic chemistry.

4. A course of lectures in metallurgy.

5. A course of lectures in agricultural chemistry.

6. Systematic laboratory work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in general chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cooke's Chemical Philosophy, Chemical Journals.

2. Lectures in industrial chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams.

A course of lectures (two hours per week) on engineering chemistry is given during the last half of the senior year, especial attention being given to the study of the construction and equipment of chemical plants devoted to the manufacture of the more important chemical products. The study of textile chemistry will also be included in this series of lectures.

Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operations of the leading industries.

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology; Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watts's Dictionary, Richardson and Watts's Chemical Technology, Sadtler's Industrial Organic Chemistry.

3. Course in organic chemistry: Instruction in this subject embraces lectures and recitations (two hours per week) throughout the junior year, upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the methods of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations.

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

4. Course in metallurgy: This consists of lectures and recitations (two per week, during the first half of the senior year) upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved.

5. Course in agricultural chemistry: This consists of lectures on chemistry in its application to agriculture (two per week, during second and third terms), and includes a thorough discussion of the origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist.

REFERENCE BOOKS.

Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson's and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

6. The course of systematic laboratory work: This course of practical work in the laboratory is carried on in connection with each course of lectures. In the jun-

ior year the work embraces the practical operations of chemical synthesis and analysis and includes the preparation of the non-metallic elements and their most important compounds, in addition to a systematic study of the metals and their compounds, their separation and identification. In the senior year students pursue work in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc., the courses of work being varied somewhat to suit the individual object of the student.

In the course in Pharmacy, instruction in Toxicology and Toxical Analysis is given during the last term of the senior year.

All students during the sophomore year are required to take two hours per week of practical laboratory work, instruction being given in the simplest methods of chemical manipulation.

The laboratories, which are open from 9 A. M. to 5 P. M., during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common re-agents and apparatus used in qualitative or quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

In addition to the laboratory work above described it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

TEXT-BOOKS.

In qualitative analysis—Jones, Sellers, Fresenius, Plattner.

In quantitative analysis—Fresenius, Cairns, Sutton, Rose, Blair's Analysis of Iron and Steel, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying, Stillman's Engineering Chemistry, Lord's Metallurgical Analysis.

In agricultural chemical analysis—Official methods of the Association of Agricultural Chemists, Wiley's Principles and Practice of Agricultural Analysis.

CHEMICAL LABORATORY.

[For description of the building see page 16.]

The chemical apparatus recently purchased for the laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, eight short-arm balances of latest pattern, Bunsen spectroscope, Abbe refractometer and other instruments for delicate and accurate work.

PHYSICS.

PROFESSOR SOUTHALL.

The complete course of Physics extends over four years, and is designed to give, as far as possible, an adequate and correct idea of the methods of Physical Science, and to lay the foundation for subsequent more advanced work if (as must often be the case, especially in an institution such as this) the student desires to pursue the subject further or intends to engage in any of the great engineering professions of which Physics is so important a basis. The lectures are illustrated by experiments; the students are required to work numerous problems and exercises; recitations are held each week.

FRESHMAN COURSE.

This course is very elementary, and continues only during the first and second terms. The object in view is to make the student familiar with the fundamental principles of Physics. The class meets three times a week. (The text-book will be announced later.)

SOPHOMORE COURSE.

This is a laboratory course, and deemed especially important for students of engineering, and of great advantage to such as intend to pursue the subsequent higher work in this department. The laboratory exercises are carefully selected, being designed to illustrate the fundamental methods and principles of Physics, and, although the work is necessarily more or less elementary, at the same time such accuracy and precision as the conditions admit of are insisted upon, so that the student is expected to acquire a fairly correct idea of modern experimental investigation. The exercises consist of the fundamental measurements of Length, Mass, Density, moduluses of Elasticity, pendulum experiments, etc., together with a few more advanced experiments in connection with the simpler properties of Liquids and Gases, and the general phenomena of Heat and Sound. The student is required to write a careful report of each experiment, entering the results of observation in tabular form, and plotting a curve wherever practicable; also describing the object, apparatus, and method, and noting sources of errors, etc. Great stress is laid upon this requirement, and reports are not accepted unless they indicate that the student has done his best in every way. Four hours per week throughout entire year. (Text-book will be announced later.)

JUNIOR COURSE.

Lectures and recitations three hours a week throughout entire session. This is a more advanced course in general physics required of all candidates for a degree. The only preparation needed is a good working knowledge of mathematics through plane trigonometry. The course includes a series of illustrated lectures on the principles of Dynamics, as applied to Solids, Liquids, and Gases, Sound, and Heat, in the order named. Written exercises are required each week. (Text-book to be announced later.)

SENIOR COURSE.

Lectures and recitations two hours a week throughout the entire session. This course, although more advanced than the Junior course, and occasionally employing the higher Mathematics, is a continuation of the work of the previous year. It might be called a course in Elementary Mathematical Physics, and the subjects, varying from year to year, that are treated in the lectures are such branches of Physics as Kinematics and Dynamics, Thermodynamics, Electricity, and Magnetism, Geometrical and Physical Optics, etc. The student is encouraged to solve difficulties for himself, and to read the standard treatises and original memoirs on the various topics that come under discussion.

The last term of the session will generally be devoted to a brief course of lectures in *Descriptive Astronomy.*

The text-books in this class vary with the changing subjects, and will be announced by the professor each year.

GRADUATE COURSE.

This course will be designed to meet the needs of the students who take it. It will include both theoretical and experimental work in more advanced Mathematical Physics, or in Analytical Mechanics.

HISTORY AND LATIN.

PROFESSOR PETRIE.

ASSISTANT BOYD.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library.

The following courses are given:

Freshman Class—History of the United States, Alabama, and England.

Text-books: Hart's "Formation of the Union," Wilson's "Division and Reunion," Brown's "History of Alabama," Montgomery's "History of England."

Sophomore Class—Political and Social History of Europe, Ancient, Mediæval and Modern. The work is conducted partly by lectures, partly by text-book. Every week problems will be assigned for research.

Text-book: Myers's General History.

HISTORICAL LABORATORY.

In the junior and senior classes opportunity for special work in United States history is given to those stu-

dents of the General Course who elect it as laboratory work, and to any others who are properly qualified. The chief object kept in view is training in historical research and in the formation of independent, but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers and letters illustrative of Southern, and especially of Alabama, history.

The method of work is as follows: Informal lectures are given on important and suggestive points. After each lecture topics connected with it are assigned to the students with an outline of the points to be investigated. They report their results to the class and a discussion follows. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion.

The following courses in laboratory work will be offered during the session of 1902-03:

Junior Class—The motive for American colonization; colonial governments; causes of the Revolution; Declaration of Independence; treaty of peace; Confederation; Ordinance of 1787; Constitution.

Text-books: Frothingham's "Rise of the Republic," Lecky's "American Revolution," Fiske's "Critical Period."

Senior Class—The rise of parties; War of 1812; Monroe Doctrine; Missouri Compromise; Nullification; Annexation of Texas; Compromise of 1850; Kansas Struggle; Dred Scott Decision; Secession.

Text-books: Moore's "American Congress," Burgess's "Middle Period."

GRADUATE STUDENTS.

Graduate students are expected to take part in the junior and senior discussions and in addition will meet with the professor for conference in regard to their work. Those who take history as their major subject are expected to devote a large part of their time to original research upon some topic on which they can consult the original sources of information. They are also required to pursue a prescribed course of reading as indicated below.

TEXT-BOOKS.

Rhodes's "History of the United States from the Compromise of 1850," Vols. 1 and 2; Stephens's "Constitutional View of the War Between the States"; Lives of Calhoun, Clay and Jackson; special reading in connection with the research.

PRIZES.

The Eufaula Chapter of the Daughters of the American Revolution have offered a gold medal for the best original historical research done during the session of 1901-02 by any young woman matriculated in college.

The Colonial Dames in Alabama have donated fifty dollars toward the expenses during the session of 1902-03 of the young man matriculated in college who submits the best research on a specified colonial topic.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization, both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation.

English passages based on the author read or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

For the benefit of students who do not study the Latin language a series of popular lectures will be given upon the great Latin writers. Especial emphasis is laid on proficiency in writing Latin exercises and in translating Latin prose at sight.

TEXT-BOOKS.

Freshman Class—Allen & Greenough's Grammar, Exercises, Nepos, Sallust or equivalent.

Sophomore Class—Cicero, Allen & Greenough's Grammar, Bennett's Latin Composition.

Junior Class.—Virgil, Livy, Allen and Greenough's Grammar, Exercises, Guerber's Mythology, Botsford's "History of Rome."

Senior Class—Horace, Tacitus, Wilkins's Latin Literature, Exercises, Preston and Dodge's "Private Life of the Romans."

MODERN LANGUAGES.

PROFESSOR WIATT.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

The following regular courses are given in French and German:

French—First Year: Three recitations a week. During this year the principal object is to acquire a knowl-

edge of the elements of grammar and a correct pronunciation, together with a facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year almost the same line of work is pursued as that begun the previous year. More difficult and varied French is read, and instruction is given upon the laws of grammar, the construction of the language, and the history of the literature. Special attention is given to sight translation.

German—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

The students in this department will meet the professor twice a week, from 4 to 5 p. m. during the *first term*, and the *third term*, for exercises in conversation in French and German.

TEXT-BOOKS.

FRENCH—*First Year*: Edgren's Grammar and Locard's Supplementary Exercises. Super's Reader.

Second Year: Feuillet's Le Roman d'un Jeune Homme Pauvre, Racine's Esther, Corneille's Le Menteur, Molière's Le Bourgeois Gentilhomme, selected plays, Whitney's Grammar, original exercises.

GERMAN—*First Year*: Joynes-Meissner's Grammar and Reader.

Second Year: Der Bibliothekar, Wilhelm Tell, Whitney's Grammar and Exercises, selected plays, original exercises.

GRADUATE COURSE.

This course is offered for the benefit of those students who wish to pursue the study of these subjects beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.



ELECTRICAL BUILDING.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.

ASSISTANT SLOAN.

JUNIOR YEAR.

First Term: Four hours per week are devoted to the study of the principles of electricity and magnetism, with special reference to their industrial applications. The subject of electrical measurements is also treated in detail.

Second Term: Incandescent lighting, four hours per week.

Third Term: Arc lighting and wiring, four hours per week.

TEXT-BOOKS.

S. P. Thompson's Electricity; Crocker's Electric Lighting, and Cushing's Standard Wiring.

Instruction is given by lectures and recitations.

LABORATORY WORK.

Four hours per week are devoted to work in the laboratory. This includes management of batteries, electrical measurements, adjustments and testing of arc lamps, and a considerable amount of wiring and some electrical construction.

SENIOR YEAR.

First Term: Dynamo electric machinery, five hours per week.

Second Term: Alternating currents and alternating current machinery.

Third Term: Polyphase machinery and power transmission, five hours per week.

TEXT-BOOKS.

Dynamo Electric Machinery, Sheldon. Alternating Currents, Franklin and Williamson, Standard Polyphase Apparatus, Oudin.

LABORATORY WORK.

Six hours per week during the entire senior year are devoted to practical work in the dynamo laboratory. The work includes the study and testing of various types of dynamos and motors, the determination of various constants, dynamo and motor efficiencies, transformer testing, and the general management and installation of electrical machinery.

ELECTRICAL DESIGNING.

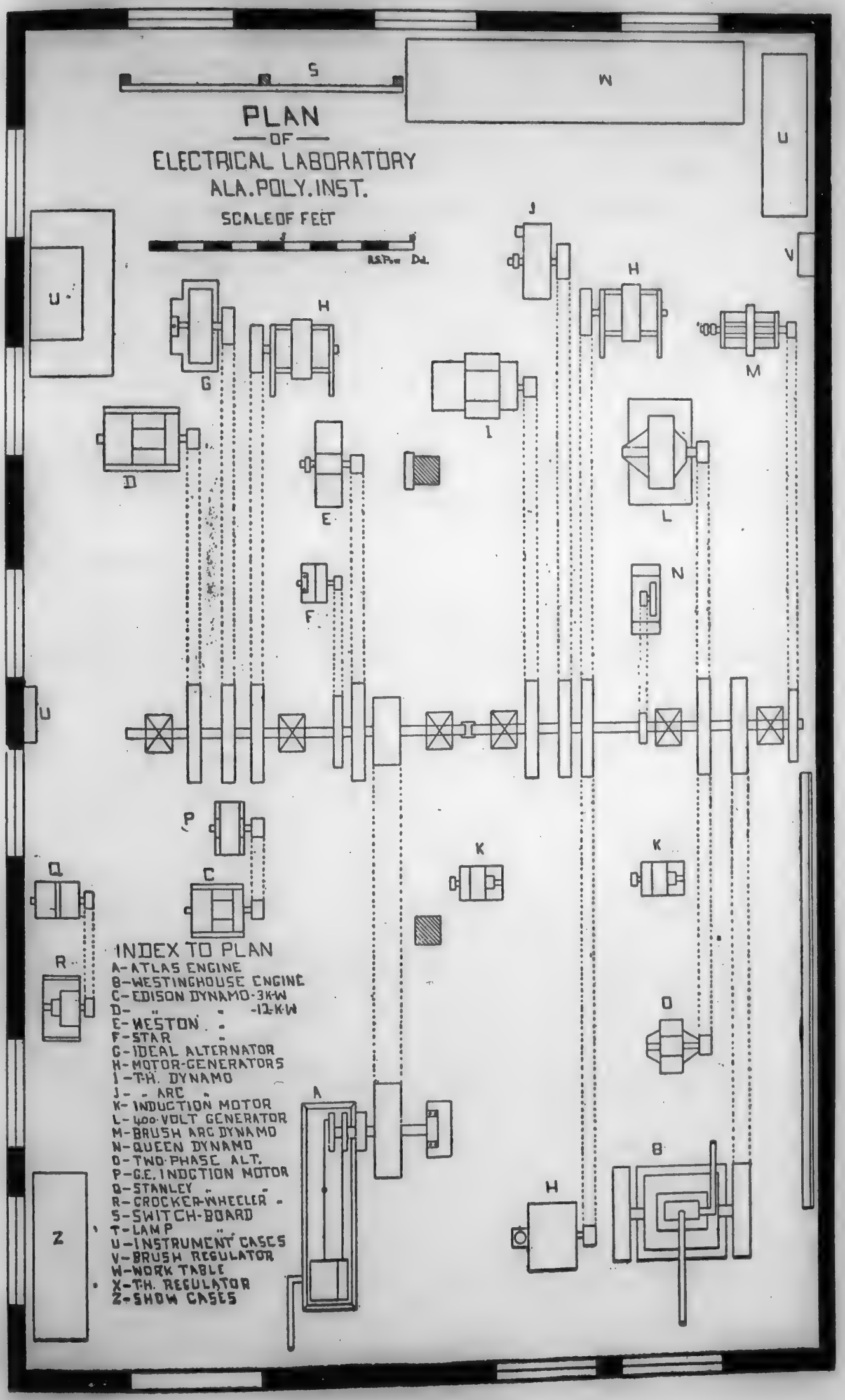
During the first term each senior student is required to design and prepare the necessary drawings for the construction of a direct current dynamo or motor, and during the third term the design of an alternator is completed.

Encouragement is offered to advanced students for conducting original investigations, and opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students in connection with their experimental work.

Post Graduate Course. To graduate students more advanced courses of instruction in polyphase machinery and power transmission are offered, the courses being varied from year to year to suit the needs of those taking them.

EQUIPMENT.

The laboratory is well supplied with batteries, storage and primary, telephones, plating apparatus and similar minor apparatus. Among the instruments of precision may be noted Kelvin ampere balances, graded current and potential galvanometers, alternating and direct current ammeters and voltmeters of various ranges, from Weston, Queen, Jewell, Hartman & Braun, Despretz, Fein, General Electric Company and other domestic and foreign makers. There are also direct reading and recording watt meters, dynamometers reading from .0001 ampere to 100 amperes, a number of resistance boxes and bridges, condensers, keys, galvanometers of various types, magnetic testing apparatus, portable and fixed, pho-


PLAN
OF
ELECTRICAL LABORATORY
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INDEX TO PLAN
A-ATLAS ENGINE
B-WESTINGHOUSE ENGINE
C-EDISON DYNAMO-3 K-W
D- " - 12 K-W
E-WESTON "
F-STAR "
G-IDEAL ALTERNATOR
H-MOTOR-GENERATORS
I-T-H. DYNAMO
J- " ARC "
K-INDUCTION MOTOR
L-400 VOLT GENERATOR
M-BRUSH ARC DYNAMO
N-QUEEN DYNAMO
O-TWO PHASE ALT.
P-G.E. INDCTION MOTOR
Q-STANLEY " "
R-CROCKER-WHEELER "
S-SWITCH-BOARD
T-LAMP "
U-INSTRUMENT CASES
V-BRUSH REGULATOR
W-WORK TABLE
X-T-H. REGULATOR
Z-SHOW CASES

tometers, high potential testing apparatus, portable testing set, cradle dynamometer, a special instrument for comparing inductances, self and mutual, and capacities.

This department, being provided with Lord Kelvin's standard electrical instruments for exact measurements, will calibrate free of expense, any ammeter or voltmeter that may be sent to the college.

In the dynamo room the following are installed: One Weston 150 volt, 20 ampere dynamo, with rheostat; one Brush 6 arc light dynamo, with regulator and six lamps; one Ideal 5 kilo-watt three phase alternator; one Thompson-Houston 9 arc light dynamo with lamps; one Edison compound wound 12 kilo-watt generator; a Thompson-Houston 110 volt, 75 ampere generator; two street car motors used as either direct or alternating current generators or motors; two polyphase induction motors; one General Electric 5 horse-power induction motor, mounted on cradle dynamometer; General Electric 20 horse-power motor; and Stanley induction motor with condensers; one Fort Wayne 1 horse-power alternating current motor; Edison 3½ kilo-watt generator; a Crocker-Wheeler 1 horse-power motor and rheostat and one bi-phase alternator, and 500 volt generator, made by special students, furnish current to laboratory and light up the different buildings. A lamp board with a capacity of 210 lamps has been installed and is used for testing purposes.

The dynamos occupy a separate brick building 50x32 feet, and are operated by a 60 horse-power Harrisburg Standard engine, and a 25 horse-power Atlas engine.

An electric motor, made by students, supplied with current from a generator at a distance of 3,000 feet, operates a gin, gin press, ensilage cutter and feed cutter at the experiment station farm. This motor not only subserves a useful purpose in the operation of these machines, but is an excellent illustration of the electric transmission of power.



WOOD ROOM.

MECHANICAL ENGINEERING AND MECHANIC ARTS.

PROFESSOR WILMORE.

ASSOCIATE PROFESSOR CRENSHAW.

ASSISTANT PROFESSOR TRAMMELL.

ASSISTANT PROFESSOR FULLAN.

INSTRUCTOR HILL.

ASSISTANT WERNER.

The course in manual training covers three years, as follows: First year, wood-working—carpentry and turning; second year, pattern making and foundry and forge work—molding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the two lower classes. For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each

The power for running the apparatus in this department is derived from a 25 horse-power Harris-Corliss automatic engine. A steam pump and a heater for the feed-water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected, and a 100 horse-power Heine boiler installed.

The equipment for the wood-working shops comprises the following: 30 wood-working benches, each with complete set of carpenter's tools; 24 turning lathes 10-inch swing each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 jointer; 1 pattern-maker's lathe 16-inch swing; 1 36-inch grindstone. The tool room is supplied with a variety of extra hand tools for special work and in addition to the regular carpenters' tools in the benches each student is supplied with a set of chisels

and plane irons with a locker to keep them in and is held responsible for their care and condition.

The equipment for the foundry consists of molding benches for 18 students, each supplied with a complete set of molder's tools; a 23-inch Colliau cupola, with all modern improvements, capable of melting 2,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small molding fiasks, a foundry crane, special tools, etc.

The forge shop equipment consists of 24 down draft forges of new pattern each with a set of smith's tools, anvils, etc. The blast for all the forges is supplied with a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a 60-inch underground exhaust blower draws the smoke from the fires into the smoke flues and forces it out through the chimney.

The machine department occupies a brick building 30x100 feet and is equipped with eight 14-inch screw cutting engine lathes with six-foot bed; 2 engine lathes, 16-inch swing (one with taper attachment); 1 engine lathe, 18-inch swing, with compound rest and taper attachment; 1 speed-lathe, 10-inch swing; 1 20-inch drill press (power feed); 1 10-inch sensitive drill; 1 15-inch shaper; 1 22-inch x22-inchx5 foot planer; 1 26-inchx26-inchx6 foot iron planer; 1 universal milling machine; 1 corundum tool grinder (14-inch wheel); 1 bench grinder; 1 post drill press; 1 Brown and Sharpe universal grinding machine; 1 universal cutter and reamer grinder; 1 power hack saw. A part of the room is set apart for vise work, chipping and filing; and benches for twelve students are provided, each with vise and set of files, chisels, hammers, etc. In the tool room is to be found a good supply of machinists' tools for general shop use, such as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, with machine for grinding twist drills.

The nature of the work in each department is as follows:

FIRST YEAR.

I. A course in carpentry or hand work covering the first two terms. The lessons include instruction in the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, different kinds of joints, timber splices,

cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work, examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the third term. The lessons comprise nature and use of lathe and tools, plain straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plate and chuck work, hollow and spherical turning.

SECOND YEAR.

I. Course in forge work in iron and steel, occupying the first term. The lessons are arranged so that the students in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

II. A course in pattern-making covering the second term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general molding.

III. A course in molding and casting in iron and brass occupying the third term. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks; core work is also given and some three part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola.

In connection with the second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

THIRD YEAR.

I. Course of chipping and filing, covering the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved surfaces, key-seating, etc., filing and finishing to line (straight and curved), surface filing and finishing, fitting,

and plane irons with a locker to keep them in and is held responsible for their care and condition.

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SECOND YEAR.

I. Course in forge work in iron and steel, occupying the first term. The lessons are arranged so that the students in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

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slotting, dovetail work, sawing, pin and screw filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron; steel and brass; turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press—reaming, boring, screw-cutting in lathe and with taps and dies, planing, slotting etc., with planer and shaper, milling various forms with the milling machine, including exercise in making taps, reamers, etc., fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals; such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

All of the work is done from blue prints and blackboard sketches. In the construction work the student is given a blue print and the material for a certain part. He is then encouraged to study the work and plan the best method of doing it.

MECHANICAL ENGINEERING.

JUNIOR YEAR.

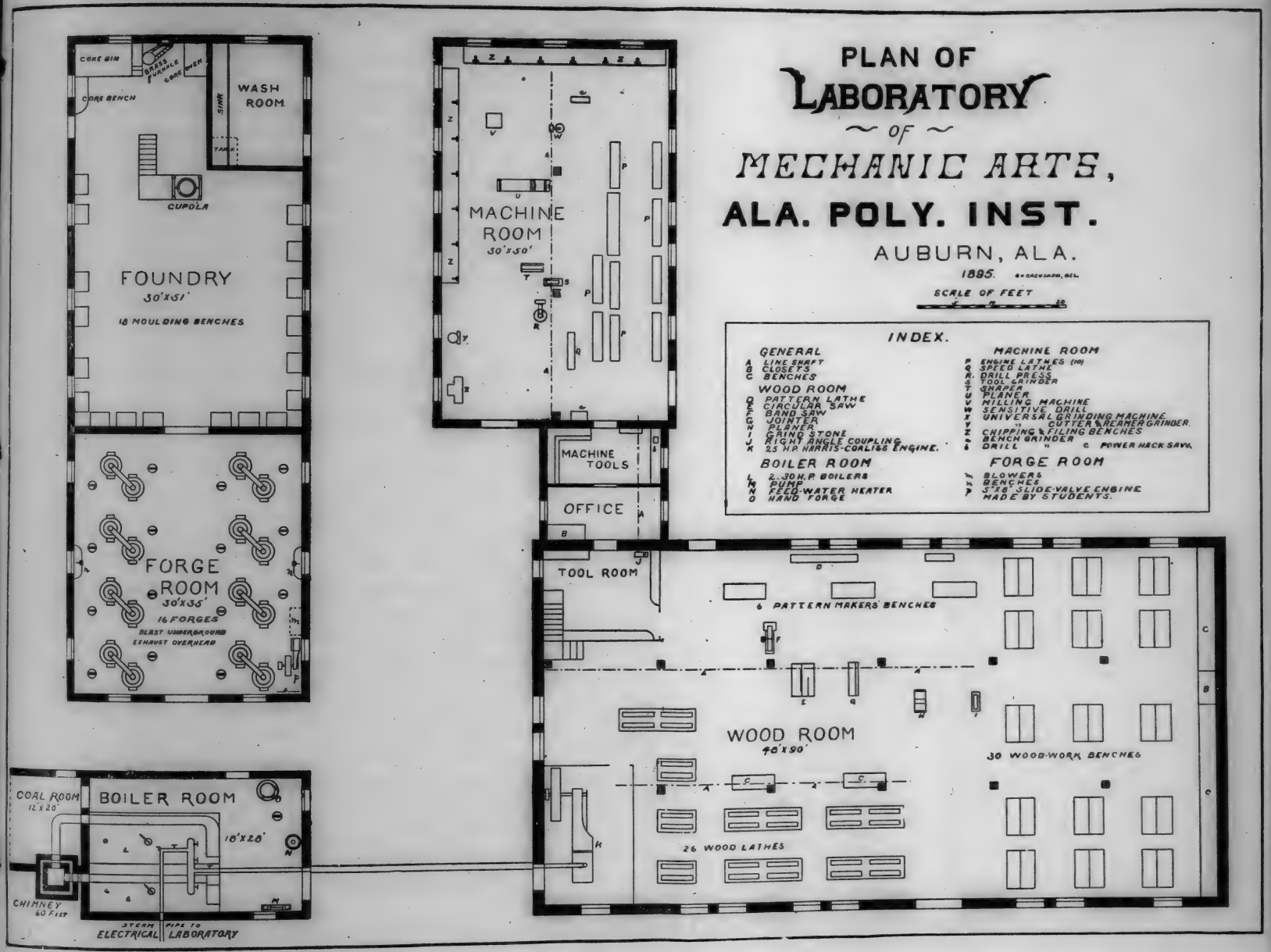
Elementary Mechanics.—Three hours a week for the first term are devoted to this subject. The fundamental laws underlying all mechanical science and the mechanics of liquids, gases and vapors are studied.

Kinematics.—Three recitations per week during the second and third terms are devoted to this subject.

Under this head machines are analyzed and their elementary combinations of mechanism studied. The communication of motion by gear-wheels, belts, cams, screws and link-work, the different ways of obtaining definite velocity ratios and definite changes of velocity, parallel motions and quick return motions as well as the designing of trains of mechanism for various purposes, together with the theoretical forms of teeth for gear wheels to transmit the motion through these trains, are investigated under this subject.

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PLAN OF
LABORATORY
OF
MECHANIC ARTS,
ALA. POLY. INST.
AUBURN, ALA.
1885.
SCALE OF FEET
INDEX.
GENERAL
A LINE SHAFT
B CLOSETS
C BENCHES
WOOD ROOM
D PATTERN LATHE
E CIRCULAR SAW
F BAND SAW
G JOINTER
H PLANER
I GRIND STONE
J RIGHT ANGLE COUPLING
K 25 H.P. HARRIS-CORLISS ENGINE.
BOILER ROOM
L 2-30 H.P. BOILERS
M PUMP
N FEED-WATER HEATER
O HAND FORGE
MACHINE ROOM
P ENGINE LATHES (10)
Q SPEED LATHE
R DRILL PRESS
S TOOL GRINDER
T SHAPER
U PLANER
V MILLING MACHINE
W SENSITIVE DRILL
X UNIVERSAL GRINDING MACHINE.
Y " CUTTER & REAMER GRINDER.
Z CHIPPING & FILING BENCHES
a BENCH GRINDER
b DRILL " c POWER HACK SAW.
FORGE ROOM
1 BLOWERS
2 BENCHES
3 5"x8 SLIDE-VALVE ENGINE
MADE BY STUDENTS.
COKE BIN
BRASS FURNACE
CORE OVEN
CORE BENCH
SINK
WASH ROOM
TANK
CUPOLA
FOUNDRY
30'X51'
18 MOULDING BENCHES
MACHINE ROOM
30'X50'
MACHINE TOOLS
OFFICE
FORGE ROOM
30'X35'
16 FORGES
BLAST UNDERGROUND
EXHAUST OVERHEAD
TOOL ROOM
6 PATTERN MAKERS BENCHES
WOOD ROOM
40'X90'
30 WOOD-WORK BENCHES
26 WOOD LATHES
COAL ROOM
12'X20'
BOILER ROOM
16'X28'
CHIMNEY
60 FEET
STEAM PIPE TO
ELECTRICAL LABORATORY

Mechanical Drawing.—Fours hours a week during the year are devoted to drawing. During the first part of the year instruction is given in the conventional methods of representing standard materials, and in the design of fastenings and machine parts. Later on scale drawings of simple machines are made from dimensioned sketches which each student makes for himself from the actual machine. Free hand lettering, tracing, and blueprinting receive attention, and all the instruction is intended to familiarize the student with modern drawing office methods.

TEXT-BOOKS.

Wood's Elementary Mechanics, Barr's Kinematics of Machinery.

SENIOR YEAR.

Mechanical Engineering of Power Plants.—The first term, five hours per week, is given to the study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages and disadvantages of each discussed. Extensive files of manufacturers' catalogues are kept and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work.

Steam Engine.—The second term five hours per week will be given to the study of the theory and efficiency of the steam engine, with discussions of the effects of condensation in cylinder, action of fly wheels, effect of jacketing, etc. Simple and compound engines, various valves

and cut-off motions, and the principal types of modern engines are studied. Special attention is given to the steam engine indicator.

Applied Mechanics.—The third term, four hours per week is given to work in this subject. Applications of the mechanical principles previously learned, are made to the solution of practical problems. Considerable attention is given to graphical methods, these being used in preference to the analytical when possible.

One hour a week for the third term is given to a series of lectures on mechanical refrigeration and gas and gasoline engines.

Machine Design.—The subject of machine design is made a continuation of the junior course and runs throughout the year, two hours a week. The general plan of the work follows the text-book adopted, but variations are made and additional exercises given when found desirable. The strength and proportion of joints, fastenings and machine details are studied. Problems are given, the dimensions worked out and the drawings made. It is the purpose of the course, as far as time will permit, to prepare students for practical drawing-room work.

Laboratory Work.—The students are not only taught how to calibrate and use the different instruments, but they are brought in contact with engineering appliances under practical working conditions.

Thoroughness of work is sought rather than the performance of a large number of experiments.

The following course has been arranged:

Calibration of steam gauge; calibration of indicator spring; calibration of thermometer; calibration of scales and balances; calorimeter tests with barrel, separating and throttling calorimeters; boiler test with determination of the quality of steam and analysis of flue gas; efficiency test of engine with brake and indicator power measurement; test of hot air pumping engine; efficiency and duty

of a steam pump; tensional, compressional and transverse tests of cast iron, wrought iron, steel and wood, in which are observed the limit of elasticity, the ultimate breaking strength and the modulus of elasticity.

This class usually makes a test of some electric plant or mill some time in the last term.

The apparatus for carrying on this work consists of a 100-horse power Heine boiler, a 45-horse power Imperial cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Worthington air pump and circulating pump; of a 25-horse power Harris-Corliss engine, a 35-horse power Westinghouse engine, a 25-horse power Atlas engine, two 9-horse power engines constructed by students in the shops; a Duplex Deane steam pump, an Ericsson hot air engine, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, pyrometers, scales, a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester for correcting the standard gauge, a 35,000-pound testing machine, and Henning micrometer extensometer, a Carpenter calorimeter, with auxiliary apparatus for determining the heating value of different fuels, a draft gauge, and a Henning pocket recorder.

TEXT-BOOKS.

Hutton's Mechanical Engineering of Power Plants, Holmes's Steam Engine, Reid's Machine Design.

REFERENCE BOOKS.

The Library contains a number of standard works on the various subjects studied, and the students are referred to them constantly for more extended treatment of many points that come up in class.

POST-GRADUATE COURSE.

Considerable latitude is allowed in the selection of post-graduate work, and the course is arranged each year to suit the requirements of the class. One of the following lines of work is recommended: Hydraulics, Thermodynamics, or Power Plant Engineering. The course selected is accompanied by suitable laboratory work.

TEXT-BOOKS.

Flather's Dynamometers and Measurement of Power, Peabody's Thermodynamics of the Steam Engine, Merriman's Hydraulics.

AGRICULTURE.

PROFESSOR DUGGAR.

Instruction in agriculture is given by means of lectures, text-books, bulletins of the agricultural experiment stations, and practical work in field, barn, and dairy.

The study of agriculture begins with the freshman class in the third term, and extends through three terms of the sophomore year and two terms of the junior year. The time devoted to this study in the lecture room is two hours per week with each class.

The subjects studied by the freshman class are the breeds of horses, cattle, sheep and hogs—their characteristics, uses, management and adaptability to the South. Practical work in judging live stock occupies one afternoon per week during the second term. Five breeds of cattle, Angus, Red Polled, Shorthorn, Jersey, and Holstein, are represented in the herd maintained by this department.

The first term of the sophomore year is devoted to dairying. Dairying is taught by practical work in the dairy,—butter making, determination of fat in milk by the Babcock method, etc.,—as well as by instruction in the lecture room.

In the second term of the sophomore year the following subjects are studied: Soils—chemical and physical properties, defects, and means of improvement; the con-

trol of water, including means of conserving moisture in times of drought, terracing, underdrainage, and open and hillside ditches; objects and methods of cultivation; agricultural implements; rotation of crops; and improvement of plants by crossing, selection, and culture.

The third term of the sophomore year is devoted to the staple crops produced in Alabama, to forage plants adapted to the South, and to plants valuable for the renovation of soils. The more important crops are treated with reference to varieties, soil and fertilizer requirements, methods of planting and cultivating, and uses. Practice is given in judging and selecting corn and cotton and in the culture of these and other staple and forage crops.

In the junior year the subjects of feeding animals, principles of breeding animals, and of farm management are studied. Among the topics included under the latter heading are different systems of farming and stock growing, farm equipment and building, silos and silage, care of farm manures, composting, choice and methods of applying commercial fertilizers for different crops and soils, and economical methods of improving exhausted soils.

In every class the student is encouraged to independent thought on agricultural problems rather than to depend on "rules of thumb," so that he may be prepared to adapt his practice in after years to changed conditions of soil, climate, capital, market, etc. The successful farmer must be a thinker rather than a blind follower of inflexible rules.

The effort is made to keep before the student the difference between the widely applicable principles on which every rational system of farming rests and the details that vary with changing conditions. The conditions of soil, climate, etc., prevailing in different parts of Alabama are kept constantly in view.

As far as limited time allows, attention is directed to agricultural literature now accumulating so rapidly in this and in foreign coun-

tries, to the end that in future years the student may know where and how to seek the information that he may need.

The equipment for carrying on the practical work of the department consists of small herds of Red Polled, Shorthorn and Angus cattle; a herd of dairy cows which are used each winter in testing the relative values and profits in different foods; a small herd of Poland China hogs; a few other miscellaneous specimens of live-stock; the fields and large collections of growing plants on the Experiment Station farm; the collection of agricultural implements employed in the work of the farm; and a working dairy, equipped with necessary appliances for making butter and testing dairy products.

POST-GRADUATE COURSE.

Applicants for post-graduate work in agriculture are assigned special research work and aided in the line of investigation deemed best for each individual student.

TEXT AND REFERENCE BOOKS.

Horses, Cattle, Sheep and Swine, by Curtis; The Study of Breeds, by Shaw; Milk and Its Products, by Wing; Dairyman's Manual, by Stewart; Soils and Crops of the Farm, Morrow & Hunt; Forage Plants, by Shaw; The Fertility of the Soil, by Roberts; Corn Culture, by Plumb; The Soil, by King; Physics of Agriculture, by King; Manures and the Principles of Manuring, by Aikman; Drainage for Profit and Health, by Waring; Agriculture in Some of Its Relations with Chemistry, by Storer; The Feeding of Animals, by Jordan; Feeds and Feeding, by Henry; Stock Breeding, by Miles; Hand-book of Experiment Station Work; and selected publications of the various divisions of the U. S. Department of Agriculture, and of the Agricultural Experiment Stations.

BIOLOGY AND HORTICULTURE.

PROFESSOR WILCOX.

1. COMPARATIVE ANATOMY OF THE SPERMATOPHYTES. A thorough study of the structure and activities of the plant cell will be followed by an examination of the typical tissues with special reference to their function. Students are required to become acquainted with the



LABORATORY OF BIOLOGY.

general methods of botanical microtechnique, including the killing, fixing, imbedding, sectioning, staining, mounting and drawing of all the tissues examined.

Lectures and Recitations: Three hours per week during the fall term of the senior year.

Laboratory Work: Two hours per week.

2. PHYTOPHYSIOLOGY.—This is a course of carefully selected experiments, to be performed by each student, supplemented by selected readings, conferences and lectures upon certain subjects. It will be the aim of this course to develop a good, general knowledge of the most important functions of seed-plants, such as absorption, photosynthetic assimilation of carbon-dioxide, transpiration and respiration.

Lectures and Recitations: Three hours per week during the winter term of the senior year.

Laboratory Work: Two hours per week.

As a text, MacDougal's "Practical Text-Book of Plant Physiology" will be employed, while as a laboratory guide Ganong's "A Laboratory Course in Plant Physiology" will be used.

3. PHYTOPATHOLOGY.—The aim of this course is to present a broad and comprehensive view of the subject. A thorough study will be made of the principal sorts of parasitic fungi, but not to the exclusion of diseases produced by unfavorable surroundings and various inorganic factors.

Lectures and Recitations: Three hours per week during the spring term of the senior year.

Laboratory Work: Two hours per week.

4. RESEARCH AND THESIS WORK.—The following lines of work are open to students during this year:

(1) Comparative embryology of spermatophytes.
(2) Ecology and ecological anatomy.
(3) Physiology and morphogenesis.

(4) Advanced plant physiology.
(5) Advanced cytology.

It is expected that seniors will select work in one of these groups and that the results of the research will be presented as a thesis for publication.

HORTICULTURE.

At present special horticultural instruction is confined to the spring term of the junior year in the course of chemistry and agriculture, and to some practical work and "field lectures" to the students of the same course during the sophomore year. Instruction is given by lectures and text-books and by courses of reading, using the green house and orchards and gardens of the experiment station to give practical illustrations of the subjects taught.

It is expected that more extensive courses in horticulture will be provided for next year in connection with a new course in botany and horticulture.

PHYSIOLOGY AND VETERINARY SCIENCE.

PROFESSOR CARY.

ASSISTANT GOGGANS.

PHYSIOLOGY.

The sophomore class studies human anatomy, physiology and hygiene during the entire college year.

It is the aim of the department to give the students practical and real knowledge of the gross anatomy and functions of the various parts of the human body. Due attention is given, also, to the laws of health—the conditions most favorable to a continuous healthy action of the organs of the human body.

Instruction is given by lectures and by text books, supplemented by blackboard drawings, charts, models

of organs, a human skeleton and by dissections of some of the smaller animals (dog, cat, etc.)

Martin's Human Body is used as a text and reference book, and several other works on anatomy, physiology and hygiene may be consulted in the college library.

VETERINARY SCIENCE AND ART.

Students in the agricultural and chemical course of study, during the entire junior and senior years, devote to this work two hours per week in the class room and three hours per week at practical clinics. Instruction in veterinary science and art is given by lectures.

The lectures are arranged with special reference to the students who are interested in horses or other domestic animals; also to those students who contemplate studying human or veterinary medicine. While it is not the aim to give a complete course in veterinary medicine, we attempt to present the general principles of comparative medicine with such special applications as are adapted to the conditions and wants of the students.



Special attention is given to the exterior anatomy of the horse, while comparative anatomy is presented mainly in connection with the study of the diseases of the different apparatus of the horse or other domestic animals.

Lameness in the horse, minor surgery, the actions and uses of the most common medicines, the principles and practice of comparative medicine, and the ways of protecting the health of domestic animals, are considered in as plain and practical a manner as the time allotted to each subject will permit. Post-mortem examination and the dissection of domestic animals are used as object lessons in the study of general pathology and anatomy.

The senior class in pharmacy devotes three hours per week, during the first and second terms, to the study of therapeutics; and three hours per week during the third term to class room and laboratory work in bacteriology.

To the post-graduate student this department furnishes work in histology, pathology, bacteriology, meat and milk inspection. This work gives students who contemplate studying medicine excellent preparatory work along that line. Such students may devote one-half their time to work in this department with the approval of the Faculty.

Histology includes methods of injecting small animals, collecting fixing, hardening, embedding, section cutting, mounting, staining, examining under the microscope, drawing and describing the different tissues.

Pathology is studied in text and reference books and morbid histology embraces naked eye and microscopic examinations of diseased tissues in the laboratory. Quite a collection of diseased tissues and animal parasites are found in connection with the laboratory.

The laboratory is well fitted for the study of bacteriology. Bacteriological analysis of water, milk, sputum, pus, diseased tissues, and of soils can be made. All of the practical operations in the preparation of culture, media, sterilizations, inoculations of small animals, straining, microscopical examinations, may be learned. In the laboratory are three Bausch & Lomb and two Winkel microscopes, each of which is supplied with oil immersion objectives, two oculars, Abbe condenser, and iris diaphragm. Sterilizers, autoclaves, incubators, and all the necessary apparatus required in bacteriological work are to be found in the laboratory.

The department of physiology and veterinary science is now lo-



LABORATORY OF PHARMACY.

cated by itself in a building which consists of a two-story portion containing four laboratory rooms on the second floor and a lecture room, museum and office on the lower floor; and a one-story part which contains an operating room.

The building is supplied with water and gas and the laboratory is now equipped for work. The museum contains the skeletons of the horse, the ox, the sheep, and the hog, and a human skeleton. It also contains anatomical models of the various parts and organs of the human body, and models of many parts of the horse, the ox and the other domestic animals. It also contains a collection of pathological and anatomical specimens, and one of animal parasites.

The new veterinary hospital building contains five large box-stalls, four open single stalls, an office and a feed room on the lower floor; the upper floor is used as a storage room for hay, fodder, etc. The hospital is supplied with fresh water.

A new brick and cement dissecting room (16x32) has just been completed. It is supplied with extensive north skylight, and with water and gas.

Every Saturday during the college year the department conducts a free clinic for the benefit of the students in veterinary science and art. Clinical cases have been various and numerous, giving the students opportunity to see and study many diseases and lameness and to become proficient in minor operations.

PHARMACY AND PHARMACOGNOSY.

PROFESSOR MILLER.

ACTING PROFESSOR MASON.

JUNIOR YEAR.

Pharmacy.—Class work, *three hours* a week. The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in pharmacy. Apparatus used in pharmaceutical processes. Discussion of all classes of pharmaceutical preparations.

Laboratory, *nine hours* a week. Preparation of official and non-official galenicals.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. All official vegetable drugs studied with aid of simple and compound microscope.

SENIOR YEAR.

Pharmacy.—Class work, *five hours* a week. Official and non-official pharmaceutical chemicals, inorganic and organic, including the more important newer remedies. The prescription. Incompatibilities. Doses.

Laboratory, *twelve hours* a week. Preparation of official and non-official pharmaceutical chemicals, inorganic and organic. Pharmaceutical testing by pharmacopœial methods. Drug assaying, special attention given to compounding of prescriptions.

Pharmacognosy.—Class work, with laboratory work, *four hours* a week. Study of important non-official vegetable drugs; of drugs of animal origin; of adulterants and worthless drugs. Practical exercises in identification of pharmaceutical preparations and chemicals.

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 300 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

MILITARY SCIENCE AND TACTICS.

COL. B. S. PATRICK, COMMANDANT.

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company and of the battalion



CORPS OF CADETS.

in close and extended order, also in guard mountings, inspections, dress parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the College is provided with modern cadet rifles and accoutrements. Ammunition for practice firing is used under the direction of an experienced officer. The exercises in target practice begin the first day of the third term.

The following uniform of standard cadet gray cloth has been prescribed for dress: Coat and trousers as worn for fatigue at West Point, with dark blue cadet cap. A neat and serviceable uniform can be obtained here at $15 to $16. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct and scholarship. The commissioned officers will be selected either from the senior or junior classes, and promotion will depend on merit and not wholly on seniority.

A band, composed of cadets, furnishes appropriate music at all reviews and parades, and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the President and Commandant. The resignation of his office by a minor will usually not be considered without first placing all the circumstances of the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Examinations will be conducted by a board of officers, to be composed of the Commandant of Cadets and two commissioned officers, to be designated by him. The proceedings of the board are subject to revision and approval by the President of the College.

Each company is officered by one captain and two first lieutenants, one second lieutenant, and with a proper number of non-commis-

sioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The junior class recites once a week in the United States Infantry Drill Regulations.

The senior class recites once a week in Wagner's Security and Information, and Manual of Guard Duty, U. S. Army.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. army and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

CADET BAND.

The cadet band is a part of the military organization of the College. It takes part in the military and other exercises, and plays when its services are required.

Regular and individual instruction is given free of charge by the band master. A text-book on general musical information is used in connection with the practical instruction.

A gold medal is given each year by the band master to the member of the band who makes the best general record for the year. The presentation is made at Commencement.

MISCELLANEOUS.

GYMNASIUM AND ATHLETIC FIELD.

The gymnasium is situated at the west end of the athletic and drill grounds, and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures.

It is equipped with Spalding's gymnasium apparatus

and is open to all students at stated hours, under the care of an officer.

The athletic field has a quarter-mile cinder track and ample space for football, baseball and general athletics.

DISCIPLINE.

The government of the College is administered by the President and Faculty in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study and punctuality in attendance in recitations and all other duties, are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the College limits, intoxicating liquors.

Students are not permitted to participate in any public entertainment, or game, without previously obtaining the consent of the Faculty.

No cadet will be permitted, without the approval of his parent or guardian, to take part in a public game of football; nor will permission be given for any athletic game to a student deficient in his studies.

MILITARY DRILL.

There are three regular military drills each week and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This association is regularly organized and has a well furnished room on the first floor of the main building set apart for its exclusive use. Through its weekly meetings it exerts a wholesome Christian influence among the students.

Students are advised to unite with the Association when they enter the Institute.

The ladies of the different churches in Auburn have recently formed an auxiliary association to the Y. M. C. A. of this Institute. Assisted by members of the Faculty, they will hold monthly a joint service of praise in the College chapel and will provide lectures for the occasion.

They have also undertaken to build a special hall for the use of the Association, and will solicit subscriptions for that purpose.

The following are the officers:

W. B. Hamilton.....President.
J. O. Webb.....Vice-President.
W. W. Rutland.....Corresponding Secretary.
F. C. Atkinson.....Recording Secretary.
W. L. Thornton.....Treasurer.
F. B. Rutledge.....Librarian.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide-water. By statute of the State the sale of spirituous liquors and keeping saloons of any kind are forbidden.

BOARDING.

The Institute has no barracks or dormitories and the students board with families in the town of Auburn, and thus enjoy all the protecting and beneficial influence of the family circle.

REGULATIONS.

(1) Each student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the College.

(2) Every absence from recitation or examination is graded zero.

(3) When the term grade of a cadet is lowered by reason of absence for which satisfactory excuse can be rendered, a special term re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(4) Only sickness, as reported by the Surgeon, or being absent by reason of family sickness, will constitute a satisfactory excuse for granting a re-examination.

When a cadet is called away from College by his parents his zeroes for absence are not removed.

(5) The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

(6) Privates of the senior class in full standing who are candidates for graduation may be excused by the President from all military drills, and also students over twenty-one years of age at the time of entering College that are permitted to devote their time to one special study, as chemistry, agriculture or pharmacy, provided the time devoted to drill is spent by them in laboratory work.

No cadet can continue an officer in the corps who during a session is classed in the fourth grade in two or more subjects at any term examination, or in the fourth grade in one subject at two term examinations; nor who receives during the session more than 60 demerits. For failures of officers re-examinations will not be granted.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of distinction are awarded in public on Commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class, provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

HONORS.

Members of the senior class who attain distinction at the final examinations with an average grade, in the subjects required, of 95 per cent. will be published as

GRADUATES WITH HIGHEST HONOR.

Those who attain distinction with an average grade of 90 per cent. and less than 95, are published as

GRADUATES WITH HONOR.

Those who attain less than 90 per cent. and more than 60 per cent. are published as *Graduates.*

Students of the classes lower than the senior, who attain distinction with an average grade in the required subjects of 95 per cent. are published in alphabetical order as having attained the *Highest Distinction.*

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervening intervals reports, giving the grade made by each student, are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the month are held by each professor during the months of October, February and April. Each examination occupies one hour.

At the end of each term written examinations, or written and oral, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations, can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except in extreme cases.



GENERAL LIBRARY.

LIBRARY.

The Library occupies an elegant, well-lighted room in the main building, and also two smaller adjacent rooms. It contains over 16,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

MUSEUM.

The Museum occupies a large room in the third story. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character. It is under the charge of Professor P. H. Mell, to whom specimens as contributions may be sent.

BOARDING HOUSES.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after "call to quarters," or are guilty of any violation of order. The report of the inspector is made to the Commandant on alternate days of the week.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the President, and this permission is given only at the close of a term, except for special reasons.

Permission to board and lodge at separate houses will be granted only to seniors, to cadets twenty-one years of age and to those who are on the "honor roll," except on special conditions.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Incidental fee, per session	$5.00
Library fee, per session	2.00
Surgeon's fee, per session	5.00
	$12.00

These fees are payable on matriculation. By order of the Trustees no fees can be remitted.

For students entering after January 1st, the fees for a half session only are required.

Board, including lodging, fuel and lights, is furnished at $12.50 to $15.00 per month.

For a non-resident of the State there is a charge for tuition of $20.00 per session, payable on matriculation, in addition to the annual fee of $12.00 payable by all students.

The necessary expenses for a session, not including uniforms or books, are for a resident of Alabama, as follows:

College fees	12.00	12.00
Board, lodging, fuel and lights....	112.50	135.00
Washing	9.00	9.00
Total	$133.50	$156.00

By special arrangement with the College authorities, Mrs. M. L. Mitchell, Mr. R. S. Rutland and Mr. B. T. Blasingame will accommodate students with board, lodging, fuel, etc., for $9.50 per month.

By boarding at one of these houses the necessary expenses may be reduced to $106.50 per session. This estimate does not include the cost of the uniform, about $15.00, or of books, say from $5.00 to $15.00, or the laboratory fees in the higher classes, $5.00 or $10.00.

LABORATORY FEES.

For each student in the junior or senior laboratory in chemistry, or in electrical and mechanical engineering, a fee of $5.00 per session is required. This fee is payable on admission to the laboratory, and is not remitted.

NON-RESIDENT STUDENTS.

Tuition for students, not residents of Alabama, is $20.00 per session, unless remitted by the Trustees to worthy students upon the recommendation of the Faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year, to those who obtain a distinction the preceding year or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remitted to sons of ministers of the gospel.

HONOR SCOLARSHIPS.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1900-1901, an honor scholarship, which exempted from tuition fees:

James Henderson Childs .....Georgia.
Berner Leigh Shi .....Georgia.
Dudley Chipley .....Florida.
Sallie Fleming Ordway .....Tennessee.
Walker Dorr Willis .....Florida.
John Eayres Davis Yonge .....Florida.
Karl Edward Lindrose .....Mississippi.
Henry Edward Werner .....Texas.

UNIFORM.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made, by a contractor, of excellent cloth manufactured at the Charlottesville mill. This suit, including cap, costs at present $15.50. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to College property for which he may be liable. General damages are assessed on the body of students.

At the close of the session the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

Fees to be paid on entrance:

Incidental fee	$5 00	
Library	2 00	
Surgeon	5 00	
Contingent fee	5 00	
Uniform	15 50	
For a resident of Alabama	$32 50	$32 50
Tuition non-resident		$20 00
For a non-resident		$52 50

Besides the above, the student should deposit with the Treasurer enough to pay for books, one month's board, incidentals, amounting to, say, $27.50. Hence, a resident of Alabama should deposit with the Treasurer $60.00; a non-resident, $75.00.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons, or wards, whether for regular charges of college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited checks are drawn on the Treasurer of the College by the Cadet to pay his necessary expenses. These checks are paid only when officially approved. The approval is given only for necessary expenses, as stated in the catalogue, unless specially requested in writing by the parent.

The College cannot be held responsible for the expenses of a student, unless the funds are deposited with the Treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty a thesis, or oration, and read and deliver the same at Commencement, if required by the Faculty.

There may be presented, with the approval of the professor in charge, a carefully written report of special work done in a labora-

tory showing independent investigation and discussion of some subject.

It must be given to the Professor of English by the first of May.

The subject must be submitted for approval by January 1st.

LITERARY SOCIETIES.

There are two literary societies connected with the College—the Wirt and the Websterian. Each has a hall in the main building.

These societies hold celebrations on the evenings of Thanksgiving Day and 22nd of February. A gentleman, selected by the Faculty, is invited to deliver an address before the Literary Societies at Commencement.

To encourage the literary societies the Trustees have directed that a medal be awarded on Commencement day to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection to be determined by the Faculty.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in the presence of the Faculty and students.

The *first and second terms* the students of the junior and sophomore classes are exercised in original orations and declamations.

The *second and third terms* the members of the senior class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

In 1885, the Alumni Society established "The Alumni Scholarship," which makes an annual loan of one hundred and seventy dollars to a beneficiary elected by the society. Young men have thus been enabled to go through college. This scholarship is supported by annual contributions from the Alumni and other friends of the institution.

The beneficiary selected is admitted without charge for tuition or college fees of any character.

Subscriptions should be sent to B. H. Crenshaw, Treasurer, Auburn, Ala.

The annual alumni oration is delivered by a member of the society in Langdon Hall, on Alumni Day, Tuesday of Commencement week.

The following are the officers of the society :

R. F. Ligon, Montgomery, Ala .....President.
T. D. Samford, Opelika, Ala.....First Vice-President.
..... Second Vice-President.
B. H. Crenshaw, Auburn, Ala.....Treasurer.
W. O. Scroggs, Auburn, Ala.....Secretary.
J. F. Webb, Talladega, Ala.....Orator for 1902.

SURGEON.

The surgeon is required to be present at the College daily, to visit at their quarters the cadets that are reported sick, and to give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering college.

ACADEMIC YEAR.

The academic year for 1902-1903 commences on Wednesday, 10th September, 1902, (*second Wednesday after the first Monday,*) and ends on Wednesday, 10th June, 1903, (*second Wednesday after first Monday*), which is Commencement Day.

It is divided into three terms. The first term extends from the opening of the session to the 23d December; the second term begins January 6th, and ends March 14th; the third term continues to the close of the session.

DONATIONS TO THE LIBRARY.

U. S. Government.—Public Documents, 193 volumes.

James W. Stewart, Cleveland, Ohio.—Mark Hanna and Other Essays, by Solon Lauer.

T W. Palmer, Tuscaloosa, Ala.—Official Register of the Officers and Students of the University of Alabama.

Henry T. Coates & Co., Philadelphia.—Casting of Nets, by Richard Bagot.

American Swedenborg Printing and Publishing Society, New York.—The Works of Emanuel Swedenborg, 21 volumes.

Mrs. M. E. Bell, Auburn, Ala.—Church Book of the Ash Creek (Ala.) Baptist Church, 1833-1868.

H. H. Meadows, Atlanta, Ga.—Steam: Its Generation and Use, by Babcock & Wilcox Co.

B. F. Johnson Publishing Co., Richmond, Va.—Elements of Agriculture, by James Bolton McBryde.

Paul I. Murrill, Hickory, N. C—Alkaloidal Estimation, by P. I. Murrill.

DONATIONS TO COLLEGE MUSEUM

During Session of 1901-1902.

By A. R. Gray, stalagtite from Marion County, Florida; by R. W. Butler, double egg; by Mr. Motley, relic found on Ogletree plantation, near Auburn, Ala.; by M. T. Fullan, skin of boa constrictor from Nicaragua; by James C. Harper, sigillarids from near Birmingham; fossil fern from near Birmingham; by J. R. St. John, Spanish sword; by Miss Mary E. Reese, Indian pipe of peace; by F. J. Houston, cartridge of shell fired from the torpedo boat Porter; by University of Alabama, slate from Clay county; mica schist from Coosa county; slate from Tallapoosa county; tourmalin, graphitic mica schist, mica schist with granite, granite, magnetite, zinc, lead and chert, diorite, quartzite, garnets, quartz rock, zinc blend, actinolite schist, graphite schist, mica schist with garnets, staurolite schist, Talladega slate, corundum, pyrite, Talladega conglomerate, cyanite, gypsum, calcite crystals, barite, plicated slate, Ashland mica schist, gypsum with salt, chrysolite slate, igneous rock,; by Jones-Williams, Indian pipe of peace, shark's tooth; by A. M. McNeel, fossil starfish, shark's teeth, other fossils, iron pyrites, trilobite, petrified bark, fossil oyster shells, fossil vertebra of fish; by C. E. Field, snake; by A. F. Jackson, Florida moss, shells; by Mrs. Dowdell, geode; by E. L. Reese, Indian grinding rock; by Mrs. Lizzie Matthews, petrified wood; by A. S. Hertz, book of flowers from the Holy Land; by S. L. Coleman, coral; by Mrs. O. D. Smith, red iron; by Dudley Chipley, rock from

Niagara Falls, satin spar from England; by J. F. Duggar, cowpea roots with tubercles, cowpea roots with nematodes; by A. F. Whitfield, human skull; by B. S. Patrick, old A. P. I. cadet flag, old East Alabama College cadet flag; by Dr. Remus Persons, insects and shells collected in and around Manila; shells gathered on beach near Yokohoma, Japan; saw of sawfish; venus shells from near Colon.

DONATIONS TO AGRICULTURAL DEPARTMENT.

2 vials almit from Farbenfabriken Elberfield Co., New York City.

1 package Swift's arsenate of lead, from Merrimac Chemical Co., Boston, Mass.

5,720 lbs. of Kanit, from German Kali Works, New York City.

1,120 lbs. muriate of potash, from German Kali Works.

1 quart Sanders corn, from W. S. Sanders, Damerville, Ga.

900 lbs. Nitrate of Soda, from Propaganda Nitrate of Soda, New York City.

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Desc:  a    SrTp:       Cont:       DtSt:  d    Dates: 1900,1940 ¶
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  2  007     h ǂb c ǂd b ǂe f ǂf u ǂg b ǂh a ǂi u ǂj p ¶
  3  043     n-us-al ¶
  4  090     LD271 ǂb .A76 ¶
  5  090     ǂb  ¶
  6  049     AAAA ¶
  7  110 2   Alabama Polytechnic Institute. ¶
  8  245 10  Catalogue of the Alabama Polytechnic Institute ǂh [microform] ¶
  9  246 10  Catalog of the Alabama Polytechnic Institute ¶
 10  246 10  Catalogue of Alabama Polytechnic Institute ¶
 11  246 10  Catalog of Alabama Polytechnic Institute ¶
 12  260     Auburn, Ala. : ǂb [The Institute], ǂc 1900- ¶
 13  300     41 v. : ǂb ill. ; ǂc 23 cm. ¶
 14  310     Annual ¶
 15  362 0   1900-1939-40. ¶
 16  500     Some years issued as part of the Bulletin of the Alabama
Polytechnic Institute. ¶
 17  500     Title varies slightly. ¶
 18  533     Microfilm. ǂm 1900-1940. ǂb Mobile, Ala. ǂc Document Technology,
ǂd 1997. ǂc   microfilm reels : negative ; 35 mm. ¶
 19  539     d ǂb 1900 ǂc 1940 ǂd alu ǂe u ǂf u ǂg a ¶
 20  610 20  Alabama Polytechnic Institute ǂx Curricula ǂx Periodicals. ¶
 21  780 00  Agricultural and Mechanical College of Alabama. ǂt Catalogue of
the Alabama Polytechnic Institute ¶
 22  785 00  Alabama Polytechnic Institute. ǂt Alabama Polytechnic Institute ¶
 23  830  0  Bulletin of the Alabama Polytechnic Institute ¶
 24  830  0  USAIN State and Local Literature Preservation Project ¶
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ALABAMA POLYTECHNIC INSTITUTE

Auburn
Alabama
1902/03

CALENDAR, 1902-1903.

SESSION BEGINS	Wednesday, Sept. 10, 1902.
Examination for admission	Wednesday, Sept. 10, 1902.
First term begins	Wednesday, Sept. 10, 1902.
Literary Society Celebration—Thanksgiving Day	Nov. 27, 1902.
First term ends	Tuesday, Dec. 23, 1902.
SECOND TERM BEGINS	Tuesday, Jan. 6, 1903.
Literary Society Celebration	Monday, Feb. 23, 1903.
Senior Class exercises	Monday, Feb. 23, 1903.
Second term ends	Saturday, March 14, 1903.
THIRD TERM BEGINS	Monday, March 16, 1903.
Senior Thesis Reported	Friday, May 1, 1903.
Sophomore Class exercises	Friday, May 1, 1903.
Field Day	Friday, May 1, 1903.
Final examinations begin	Friday, May 29, 1903.
Commencement sermon	Sunday, June 7, 1903.
Annual meeting of Trustees	Monday, June 8, 1903.
Military exercises, 4 p. m.	Monday, June 8, 1903.
Junior Class Celebration, 8 p. m.	Monday, June 8, 1903.
Alumni Day	Tuesday, June 9, 1903.
Military exercises, 5 p. m.	Tuesday, June 9, 1903.
Address before Literary Societies, 8 p. m.	Tuesday, June 9, 1903.
COMMENCEMENT DAY	Wednesday, June 10, 1903.

MAIN BUILDING.
ALABAMA
POLYTECHNIC INSTITUTE.



CATALOGUE

OF THE

Alabama Polytechnic Institute

STATE COLLEGE

FOR THE

BENEFIT OF AGRICULTURE AND THE MECHANIC ARTS

AUBURN, ALABAMA

1902

MONTGOMERY, ALABAMA
THE BROWN PRINTING COMPANY, PRINTERS AND BINDERS
1902

TRUSTEES.

His Excellency, W. D. JELKS, President.....*Ex-Officio.*
JNO. W. ABERCROMBIE, Superintendent of Education..*Ex-Officio.*

TERM EXPIRES, 1907.

JONATHAN HARALSON .....Montgomery, Ala.
THOMAS WILLIAMS.....Wetumpka, Ala.
J. A. BILBRO .....Gadsden, Ala.

TERM EXPIRES, 1905.

J. M. CARMICHAEL.....Ozark, Ala.
W. K. TERRY.....Birmingham, Ala.
T. H. FRAZER.....Mobile, Ala.
I. F. PURSER.....Opelika, Ala.

TERM EXPIRES, 1903.

R. F. LIGON.....Montgomery, Ala.
TANCRED BETTS .....Huntsville, Ala.
WM. C. DAVIS.....Jasper, Ala.

E. T. GLENN, Treasurer. J. H. DRAKE, M. D., Surgeon.

R. W. BURTON, Secretary.

FACULTY AND OFFICERS.

*WILLIAM LEROY BROUN, M. A., LL. D.,
President.

OTIS DAVID SMITH, M. A., LL. D.,
Acting President, and Professor of Mathematics.

PATRICK HUGHES MELL, M. E., Ph. D.,
Professor of Botany and Geology.

JAMES HENRY LANE, C. E., M. A., Ph. D., LL. D.,
Professor of Civil Engineering and Drawing.

CHARLES COLEMAN THACH, M. A.,
Professor of English and Political Economy.

GEORGE PETRIE, M. A., Ph. D.,
Professor of History and Latin.

BENNETT BATTLE ROSS, M. Sc.,
Professor of General and Agricultural Chemistry and State Chemist.

JOHN JENKINS WILMORE, M. E.,
Professor of Mechanical Engineering and Director of Laboratory.

CHARLES ALLEN CARY, B. Sc., D. V. M.,
Professor of Physiology and Veterinary Science.

(*a*) EMERSON R. MILLER, PHAR. M., M. Sc.,
Professor of Pharmacy.

JOHN FREDERICK DUGGAR, M. Sc.,
Professor of Agriculture.

ARTHUR ST. CHARLES DUNSTAN, M. E., C. E.,
Professor of Electrical Engineering and Physics.

JOHN EDWARD WIATT, M. A.,
Professor of Modern Languages.

EDWIN MEAD WILCOX, M. A., Ph. D.,
Professor of Biology and Horticulture.

BOLLING HALL CRENSHAW, M. E.,
Associate Professor of Mechanical Engineering and Mathematics.

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*Died January 23, 1902.

(*a*) Absent on leave, at University in Germany.

JAMES POWELL COCKE SOUTHALL, M. A.,
Associate Professor of Physics.

BENJAMIN SWEAT PATRICK, E. & M. E.,
Commandant and Acting Professor of Military Science.

ENOCH MARVIN MASON, M. Sc.,
Acting Professor of Pharmacy.

ROBERT JEFFERSON TRAMMELL, C. E.,
Assistant Professor of Mechanic Arts.

MICHAEL THOMAS FULLAN, M. Sc.,
Assistant Professor of Mechanic Arts.

CLIFFORD LEROY HARE, M. Sc.,
Assistant Professor of Chemistry.

WILLIAM OSCAR SCROGGS, M. Sc.,
Assistant Librarian, and Assistant in English.

WILLIAM WELCH HILL, E. & M. E.,
Assistant in Mechanic Arts.

ARTHUR FLOURNOY JACKSON, B. Sc.,
Assistant in Sub-Freshman English and Mathematics.

PAUL SHIELDS HALEY, B. Sc.,
Assistant in Civil Engineering and Drawing.

JOHN TALBERT LETCHER, B. Sc.,
Assistant in English.

(*a*) JAMES BAXTER JACKSON, B. Sc.,
Assistant in Chemistry.

(*b*) MATTHEW SCOTT SLOAN, B. Sc.,
Assistant in Electrical Engineering.

JESSE WRIGHT BOYD, B. Sc.,
Assistant in History and Latin.

JAMES OLNEY GOGGANS, B. Sc.,
Assistant in Veterinary Science.

HENRY EDWARD WERNER, B. Sc.,
Assistant in Mechanic Arts.

(*a*) Appointed Jan. 2d, vice A. H. Mitchell, resigned.
(*b*) Appointed Jan. 2d, vice K. E. Lindrose, resigned.

COMMITTEES OF THE FACULTY.

COMMITTEE ON DISCIPLINE,
Professors Smith, Thach, Mell, Ross.

COMMITTEE ON ENTRANCE EXAMINATION,
Professors Smith, Thach, Petrie, Crenshaw.

COMMITTEE ON EXAMINATION OF SPECIAL STUDENTS,
Professors Wilmore, Dunstan, Miller.

COMMITTEE ON PUBLIC LECTURES,
Professors Petrie, Dunstan, Southall.

COMMITTEE ON LIBRARY,
Professors Thach, Petrie, Wiatt.

COMMITTEE ON ATHLETICS,
Professors Ross, Mell, Dunstan, Thach.

SUPERINTENDENT OF GROUNDS AND BUILDINGS,
Professor Wilmore.

CURATOR OF MUSEUM,
Professor Mell.

SECRETARY OF ALUMNI RECORD,
Professor Crenshaw.

AGRICULTURAL EXPERIMENT STATION.

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION.

J. M. CARMICHAEL.....Ozark, Ala.
THOMAS WILLIAMS .....Wetumpka, Ala.
JONATHAN HARALSON .....Montgomery, Ala.

STATION COUNCIL.

*WM. LEROY BROUN.....President.
O. D. SMITH.....Acting President.
P. H. MELL.....Director and Botanist.
B. B. ROSS.....Chemist.
C. A. CARY .....Veterinarian.
J. F. DUGGAR.....Agriculturist.
E. M. WILCOX.....Biologist and Horticulturist.
J. T. ANDERSON.....Associate Chemist.

ASSISTANTS.

C. L. HARE.....First Assistant Chemist.
THOMAS BRAGG.....Second Assistant Chemist.
J. C. PHELPS.....Third Assistant Chemist.
T. U. CULVER.....Superintendent of Farm.
R. W. CLARK.....Assistant Agriculturist.
C. F. AUSTIN.....Assistant Horticulturist.
G. F. FREEMAN.....Student Assistant to Director.
M. J. LIDE.....Student Assistant to Director.

OFFICER IN CHARGE OF FARMERS' INSTITUTES,

DR. C. A. CARY.

*Died Jan. 23d, 1902.

The Institute is a distinctive school of Science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts established by the State in 1872, by endowing it with the land-grant appropriation made by the U. S. Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

In its course of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty. The Institute thus endeavors to educate as well as instruct, to form character as well as give information of value.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The Institute now possesses facilities for giving laboratory instruction in applied science in the following departments:

I. IN AGRICULTURE AND HORTICULTURE.

The farm contains 304 acres, and is supplied with illustrative specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

II. IN MECHANIC ARTS.

The laboratory of mechanic arts is used as an auxiliary in industrial education, and as a school of manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is instructive in character, as in any other laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the Institute

each student enters this school and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus by associating manual and mental training, to educate thoroughly the student for the duties of life, whatever may be his vocation. There is no attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall, 90x50 feet, and is provided with a twenty-five horse-power Corliss engine, a planer, circular saw, band-saw, a buzz planer, a pattern maker's lathe, twenty-four stands, each with a lathe and a full set of tools, and thirty benches for carpenter work with the tools requisite for construction.

A brick building, 52x87 feet, with two rooms, has been constructed especially for instruction in working iron.

One room is equipped with twenty-four forges and tools required for a forge department, and the other with a Colliau cupola furnace, a core oven, a brass furnace, molding benches, foundry crane constructed by students, and special tools for use in a foundry.

The forge and foundry rooms are furnished with a fan and exhauster, supplied with power from an engine constructed by the students in mechanic arts.

The machine department occupies a brick building, 30x100 feet, and is equipped with eleven engine lathes, one speed lathe, one 20-inch drill press, one 10-inch sensitive drill, one 16-inch shaper, one 5-foot planer, one 6-foot planer, one universal milling machine, a corundum tool grinder, a small emery grinder, a No. 1 Brown

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& Sharpe universal grinding machine, a universal cutter and reamer grinder, and a power hack saw.

The chipping and filing department is arranged with benches, vises and tools for eighteen students.

The tool room is well supplied with special tools for use in instruction, including a machine for grinding twist drills. The rooms are lighted with electricity whenever necessary.

III. IN PRACTICAL CHEMISTRY.

The chemical laboratory is supplied with modern apparatus, and in its equipment affords excellent facilities for instruction in practical chemistry and for investigation.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates sixty students, a special laboratory for Seniors that will accommodate thirty students, a lecture room with a capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

IV. IN ELECTRICAL ENGINEERING.

The electrical laboratory is well supplied with modern appliances for instruction in electrical engineering. It occupies three large rooms in the basement and is equipped with many fine instruments of precision.

In addition to resistance boxes, bridges, condensers, galvanometers, dynamometers, wattmeters, photometers, and other laboratory instruments, the department

is supplied with representatives of the best types of commercial electrical instruments from foreign and domestic makers.

The laboratory is also equipped with apparatus for making breakdown tests of insulating materials, up to 30,000 volts, also with spectroscopic apparatus for testing the quality of arc light carbons.

The dynamos occupy a separate building and are operated by a twenty-five horse power Atlas engine, and a sixty horse power Harrisburg standard engine. In this building are installed the following dynamos:

Edison compound 12 Kilo-watt generator, Thompson-Houston 150 light 110 volt dynamo, Weston 150 volt 25 ampere generator, Crocker-Wheeler one horse power motor, Ideal 3 phase alternator, Brush 6 arc light dynamo with lamps, two Baxter street car motors, 20 horse power each (so connected as to be used as direct or alternating current motors or generators), one 5 horse power three phrase motor, one General Electric 20-horse power motor, one 40 light shunt dynamo, one Edison 3 Kilo-watt generator, one Stanley induction motor with condensers, two bi-phase induction motors (built by students), one 9 light Thompson-Houston arc machine, one Fort Wayne 1 horse power alternating current motor, a number of transformers, etc., two phase alternator and 500 volt 20 ampere generator, made by students. There is also in connection with this department at the experiment station, a ten horse power motor, made by students, which is operated by the 500 volt generator in the dynamo room.

V. IN PHYSICS.

The physical laboratory occupies two rooms, one of these being permanently darkened for experimental work in light.

It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, a horizontal comparator, a Kater's reversion pendulum, balances, etc., and a quantity of minor apparatus.

Recently there has been added a concave grating spectrograph, a large induction coil of 12 inch spark, and other apparatus of value.

VI. IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate thirty students, with an excellent collection of minerals.

VII. IN BOTANY.

In the work of the agricultural experiment station there is a botanical garden under the charge of the professor of botany; investigations in botany are given special attention, and opportunities are offered advanced students for practical work in a laboratory especially fitted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research. This department is provided with Auzoux's elastic models of seeds and flowers for teaching botany.

VIII. IN BIOLOGY.

The laboratory for plant morphology, histology, and pathology adjoins the lecture room of the professor, and is well equipped with appliances for the investigation of these subjects.

A small laboratory and adjoining greenhouse are being thoroughly equipped for work in experimental

plant physiology and pathology. It is hoped that during the coming year excellent facilities may then be offered for the study of these objects.

IX. IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, models of bridges, etc., is provided for the use of the students, and the customary exercises in the field are given.

X. IN DRAWING.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing room, which will accommodate fifty students, is provided with tables, lock-boxes, etc.

XI. IN MECHANICAL ENGINEERING.

The mechanical course has been extended to include experimental work in mechanical engineering.

The apparatus available for this instruction is as follows: A 45-horse power Imperial Cross compound engine, specially arranged for experimental work, supplied with Wheeler surface condenser and Worthington air pump and circulating pump, a 25-horse power Harris-Corliss engine, a 35-horse power Westinghouse engine, two 9-horse power engines constructed by students, the 100-horse power boiler belonging to the regular power plant, a Deane duplex steam pump, a 4-horse power gasoline engine, an Ericsson hot air engine, a New York air pump, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, thermometers, a pyrometer, scales, a standard steam

gauge with apparatus for testing steam gauges, a Crosby dead weight tester with weights for correcting the standard gauge, a 35,000-pound testing machine, a Henning micrometer extensometer, and a Carpenter calorimeter with the necessary auxiliary apparatus for determining the heating value of different kinds of coal.

This work is now carried on in the lower story of the annex to the chemical laboratory. This room is 30x60 feet in size, and was specially designed and fitted up for this purpose. A three-inch steam main has been laid from the boiler house, thus securing a steam supply in the building for all work requiring it. The work is thoroughly practical, and it is desired to extend it as rapidly as the funds available for the purchase of apparatus will allow.

XII. IN PHYSIOLOGY AND VETERINARY SCIENCE.

There has been constructed for the veterinary department a new and separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, and museum with skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room constructed, with cement floor and north roof light especially for this department. This Laboratory is used by the professor and students each afternoon for three months.

XIII. IN PHARMACY.

The laboratory of this department occupies the second floor of the annex to chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations.

The students work in the laboratory with the professor, from five to eight hours, six days in the week.

The facilities are increased as means are available.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE BUILDINGS.

The frontispiece is a representation of the main College building. It is 160x71 feet, and contains forty-five rooms. This building is not used for dormitories for students, but is appropriated to purposes of instruction and investigation.

It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc.

LANGDON HALL.

This is a two-story building, 90x50 feet. The second story is the audience hall, used for commencement and other public occasions.

The first story is appropriated to the laboratory of mechanic arts.

THE CHEMICAL LABORATORY.

As shown on the opposite page this is a two-story structure, 40x60 feet, with a rear projection, 35x60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and terra cotta ornamentation.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains improved working tables, with water, gas and every necessary appliance for chemical work.

The laboratory for advanced work in chemistry will accommodate thirty students and is equipped in the same manner. Adjoining this are two rooms which are used respectively as a balance room, and a room for work with spectroscope, polariscope, etc.

The second story contains a lecture room with seats and tablets for eighty students. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and mechanical chemistry, prominent subjects taught in the institution.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building, containing rooms for pharmacy, mechanical engineering and drawing.

The Chemical Laboratory for the Agricultural Experiment Station occupies a building 60x26 feet and is appropriated exclusively for chemical investigation and research, and not for instruction.



CHEMICAL LABORATORY.

HONOR ROLL FOR CONDUCT, 1902.

The names of the following cadets, who have received no demerits during the year, are placed upon the honor roll for good conduct:

SUB-FRESHMAN CLASS.

Hixon, C. B.
Holt, J. E.
Jackson, C. E.
Nelson, A. B.
Rhodes, C. E.
Wilson, W. S.
Webb, T. J.
Webb, E. F.

SPECIAL STUDENTS.

Bonner, W. J.
Crumpler, L. H.
McLeod, H.
Jackson, E. C.
McNeel, A. M.
Owen, W. F.
Sawyer, B. R.
Steele, B. W.

FRESHMAN CLASS.

Allison, H. A.
Campbell, B. M.
Going, W. S.
Greene, J. B.
Hanby, E. K.
Jackson, C. J.
McAdory, I. S.
Meredith, W. M.
Middleton, F. S.
Newman, F. F.
Robinson, J. L.
Riley, T. A.
Rogers, C. M. A.
Thomas, A. L.
Wood, J. W.

SOPHOMORE CLASS.

Burke, R. P.
Chipley, D.
Davis, H. E.
Foss, G. B.
Hill, G. B.
Hudson, J. D.
Hunt, F. E.
Kauffman, R.
Matson, T. H.
Mitchell, J. H.
Rigney, P.
Rutledge, C. P.
Thornton, W. L.
Turnley, W. M.
Yonge, H. M.

JUNIOR CLASS.

Atkinson, F. C.
Ellis, M.
Collins, C. A.
Dawson, R. G.
Feagin, C. E.
Hamilton, W. B.
Herndon, D. T.
Kyser, J. A.
Lide, M. J.
Snedecor, G. W.
Webb, J. O.
Willis, W. D.
Yonge, J. E. D.

SENIOR CLASS.

Arnold, R. T.
Bradford, K.
Bragg, T.
Conner, H. H.
Eagar, W. H.
Felton, L. M.
Foy, J. D.
Hagler, W. H.
Haley, P. S.
Jackson, A. F.
Jackson, J. B.
Kahn, M. D.
Kauffman, C.
Killebrew, E. S.
Letcher, J. T.
Lindrose, K. E.
Noll, W. L.
McCrary, W. D.
McGehee, W. B.
Parker, D. J.
Phelps, J. C.
Stickle, H. S.
Turpin, M. C.
Werner, H. E.
Whitfield, G.
Williams, J. C.

GRADUATES IN 1901.

CLASS OF 1901.

HONORS.

Members of the Senior Class who attained distinction with a grade of 95 per cent. are Graduates with Highest Honor. Those who attained a distinction with a grade of 90 per cent. and less than 95, are Graduates with Honor. Those who attained less than 90 per cent. and more than 60 per cent. are Graduates.

DEGREES.

BACHELOR OF SCIENCE.

GRADUATES.

Robertson Tanner Arnold ..... Florida
Idaline Bell ..... Lee
Kenneth Bradford ..... Montgomery
Samuel Hamner Browne ..... Tuscaloosa
Salmon Holmes Burns ..... Lee
David James Castleman ..... Hale
LeRoy Madison Felton ..... South Carolina
James Olney Goggans ..... Tallapoosa
Walter Lee Greene ..... Lee
William Hope Haigler ..... Montgomery
Michael Smith Harvey ..... Lee
Charles Henry Haynes ..... Bullock
Daniel Hagood Haynes ..... Dallas
Arber Samuel Hertz ..... Georgia
Robert Holland Hood ..... Jefferson
Arthur Flournoy Jackson ..... Georgia
James Baxter Jackson ..... Lee
Jefferson Franklin Jones ..... Sumter
Claude Kauffman ..... Mobile
Emmett Stephens Killebrew ..... Dale
William Reid Lancaster ..... Lee

Walter Deems McCrary .....Lee
William Boyd McGehee .....Montgomery
Benjamin Baldwin Meriwether .....Montgomery
Isaac Lenoir Moore .....Lee
Merrill Hastings Moore .....Montgomery
William Louis Noll .....Tennessee
James Cochran Phelps .....Lee
James Blackmon Powell .....Bullock
Shepherd Harrison Roberts .....Montgomery
Harvey Owen Sargent .....Franklin
Lyman Hall Shaw .....Sumter
Henry Alexander Skeggs .....Morgan
Matthew Scott Sloan .....Mobile
Holland McTyeire Smith .....Lee
Louis Sternfeld .....Montgomery
Leonidas Wharton .....Cherokee
Gaius Whitfield .....Marengo
Jere Crawford Williams .....Lee
John Rutledge Williams .....Jefferson
Edward Houston Wills .....Lee

GRADUATES WITH HONOR.

Herschel Winston Bass .....St. Clair
Thomas Bragg .....Lee
Herschel Henry Conner .....Macon
William Hamilton Eagar .....Winston
Eugene Flynn Enslen .....Jefferson
John Drewry Foy .....Barbour
Myron Daniel Kahn .....Lee
Karl Edward Lindrose .....Mississippi
Dorsey Julian Parker .....Escambia
Oscar Menderson Schloss .....Barbour
John Hunt Skeggs .....Morgan
Godfrey Rhodes Thomas .....Sumter
Manly Curry Turpin .....Virginia
Henry Edward Werner .....Texas

GRADUATES WITH HIGHEST HONOR.

Paul Shields Haley .....Walker
John Talbert Letcher .....Macon
Abram Hill Mitchell .....Lee

POST-GRADUATE DEGREE.

MASTER OF SCIENCE.

Idaline Bell ..... Lee
Emma Beall Culver ..... Lee
Charles Lewis Harold ..... Escambia
Mabel Heard ..... Lee
John William Jepson ..... South Carolina
Enoch Marvin Mason ..... Conecuh
James Richard Rutland ..... Chambers
Harvey Owen Sargent ..... Franklin

DISTINGUISHED STUDENTS.

DISTINCTIONS.

Students who receive a grade above 90 per cent. and less than 95 in three studies in the Freshman class, in four in the Sophomore class, in five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent. are awarded Certificates of Hignest Distinction.

JUNIOR CLASS.

DISTINCTION.

William Cruse Coles ..... Marshall
James Browder Garber ..... Hale
William Bulger Hamilton ..... Elmore
Gaston Joel Lipscomb ..... Marengo
Walker Dorr Willis ..... Florida

HIGHEST DISTINCTION.

Marvin Ellis ..... Morgan
James Allen Kyser ..... Dallas
Martin James Lide ..... Dallas
Richard Blount Shepard ..... Mobile
George Waddell Snedecor ..... Jefferson
John Eayres Davis Yonge ..... Florida

SOPHOMORE CLASS.

DISTINCTION.

Rush Pearson Burke ..... Montgomery
Dudley Chipley ..... Florida
Sidney Cornell ..... Jefferson
Howard Ellis Davis ..... Mobile
Thomas Joseph Dowdell ..... Montgomery
George Bridges Foss ..... Etowah

Roy Kauffman .....Mobile
Walter Joseph Knight .....Mobile
William Lawson Thornton .....Talladega

HIGHEST DISTINCTION.

None.

FRESHMAN CLASS.

DISTINCTION.

Julian Sidney Chambers .....Montgomery
James Henderson Childs .....Georgia
William Lawrence Dumas .....Mobile
James Buchanan Green .....Crenshaw
Chauncey Smith Joseph .....Montgomery
John McDuffie .....Monroe
Frederick Shealy Middleton .....Chambers
Fenton Forest Newman .....Talladega

HIGHEST DISTINCTION.

Frederick Emanuel Geibel .....Montgomery
John William McConnell .....Jefferson
William Martin Shepard .....Mobile
Berner Leigh Shi .....Georgia

SPECIAL STUDENTS.

DISTINCTION.

Ethel Julia Harwell .....Lee
Mollie Hal Hollifield .....Lee
Herbert McLeod .....Pike
Sallie Fleming Ordway .....Tennessee
Henry Sleeth Stickle .....Lauderdale

CATALOGUE OF STUDENTS.

FOR SESSION OF 1901-1902.

GRADUATE STUDENTS.

(Residence in Alabama when State is not given.)

Name.	*Residence.*
Herschel Winston Bass	St. Clair
Idaline Bell	Lee
Jesse Wright Boyd	Lee
Mary Wright Boyd	Lee
Thomas Bragg	Lee
Marion Lara Brown	Georgia
Emma Beall Culver	Lee
James Olney Goggans	Tallapoosa
Paul Shields Haley	Walker
Michael Smith Harvey	Lee
Arthur Flournoy Jackson	Georgia
James Baxter Jackson	Lee
Kate Meade Lane	Lee
John Talbert Letcher	Macon
Karl Edward Lindrose	Louisiana
Frederick Greenville Matthews	Lee
Abram Hill Mitchell	Lee
Augustus Young Napier	Lee
James Cochran Phelps	Lee
Matthew Scott Sloan	Mobile
Henry Edward Werner	Texas
Edward Houston Wills	Lee

UNDERGRADUATE STUDENTS.

SENIOR CLASS.

Oliver Hannibal Alford.....Marshall
William Marvin Askew .....Georgia
Frederick Cornelius Atkinson .....Dale
Charles Homer Billingsley .....Elmore
Edward Lambeth Carroll .....Florida
William Cruse Coles .....Marshall
Clyde Allen Collins .....Hale
Alpheus Mallette Davis .....Florida
Robert Geoghegan Dawson .....Montgomery
Jesse Duncan Elliott .....Minnesota
Marvin Ellis .....Morgan
James Douglas Farley .....Lee
Clarence Eugene Feagin .....Bullock
James Browder Garber .....Hale
Arthur Rodfer Gray .....Florida
Jeremiah Warren Gwin .....Jefferson
William Houston Gwin .....Jefferson
William Bulger Hamilton .....Elmore
Clifton Duane Haynie .....Lee
William Tillman Heard .....Lee
Dallas Tabor Herndon .....Henry
Mollie Hal Hollifield .....Lee
Franklin Jerome Houston .....Jefferson
Collins James Johnson .....Missouri
Morris Ketchum .....New York
Howard Malcolm Kilpatrick .....Georgia
Martin James Lide .....Dallas
Gaston Joel Lipscomb .....Marengo
Earle Irwin McBryde .....Wilcox
Thomas Michael McCarroll .....Florida
Henry Bigham Park .....Georgia
Douglass Welles Peabody .....Illinois

George Clement Sequiera ..... Nicaragua
Brady Wilkinson Steele ..... Autauga
Richard Blount Shepard ..... Mobile
Enrico Alfonso Washington ..... Georgia
John Osceola Webb ..... Coosa
Walker Dorr Willis ..... Florida
John Eayres Davis Yonge ..... Florida

JUNIOR CLASS.

Albert Miner Avery ..... Florida
Marshall Leonard Bize ..... Georgia
James Victor Blackwell ..... Calhoun
Stewart Dixon Brown ..... Henry
†Ryland Crews Bryant ..... Jefferson
Rush Pearson Burke ..... Montgomery
Robert Wright Cabaniss ..... Jefferson
Thomas Arthur Caddell ..... Etowah
†William Julius James Chase ..... Georgia
Dudley Chipley ..... Florida
William Hudmon Cooper ..... Lee
Sidney Cornell ..... Jefferson
Charles Sanders Culver ..... Lee
Howard Ellis Davis ..... Mobile
William Watson Davis ..... Mobile
William Wert Dinsmore ..... Morgan
Thomas Joseph Dowdell ..... Montgomery
†William Eugene Finch ..... Florida
George Bridges Foss ..... Etowah
George Fouche Freeman ..... Cherokee
William Lanier Halsey ..... Madison
Earnest Cecil Haynie ..... Lee
Bell George Hazard ..... Calhoun
Henry Hiden ..... Jefferson
George Bloise Hill ..... Talladega
Wilburn Hill ..... Etowah

† Not in full standing.

Alexander Grice Horn ..... Sumter
James Daughtry Hudson ..... Georgia
Roy Kauffman ..... Mobile
Walter Joseph Knight ..... Mobile
George Duncan Lesesne ..... Mobile
Percy McLean Marshall ..... Georgia
Winfield Scott Martin ..... Jefferson
John VanValkenburg Matthews ..... Madison
Robert Peyton Mims ..... Jefferson
John Harris Mitchell ..... Georgia
Thomas William Morgan ..... Jefferson
Frank Elmer Miller ..... Calhoun
Sallie Fleming Ordway ..... Tennessee
James Porter Paterson ..... Montgomery
†David Philips Pruett ..... Bullock
Wallace Powell Pruitt ..... Lowndes
†George Daniel Randle ..... Jefferson
John Patrick Rembert ..... Mississippi
Paul Rigney ..... Madison
William Richard Rison ..... Madison
Tod Hewitt Roberts ..... Jefferson
Carl Robinson ..... Tallapoosa
William Watson Rutland ..... Chambers
Clifford Philip Rutledge ..... Lee
Hans Schmidt ..... Jefferson
John Rice Searcy ..... Conecuh
Walter Otey Shivers ..... Perry
Edmund Rhett Taber ..... Montgomery
Edward Taylor ..... Marengo
Louis Earle Thornton ..... Florida
William Lawson Thornton ..... Talladega
Holmes Fielding Troutman ..... Georgia
Filo Harris Turner ..... Florida
William Micou Turnley ..... Elmore
Joseph Dorrah Walker ..... Jefferson
Henry Matthew Yonge ..... Florida

† Not in full standing.

SOPHOMORE CLASS.

Henry Alexander Allison ..... Sumter
William Leroy Alston ..... South Carolina
John Shillman Arnold ..... Florida
Frank Gordon Bell ..... Lee
John Ambrose Beckham ..... Lee
William Arthur Branan ..... Georgia
Jefferson Edward Brown ..... Jefferson
Andrew Duke Cameron ..... Macon
†Borden Montgomery Campbell ..... Greene
Emmett Tulane Camp ..... Etowah
Julian Sidney Chambers ..... Montgomery
Alan Armistead Chester ..... New York
James Henderson Childs ..... Georgia
Victor Hugo Clements ..... Limestone
William Shapard Dowdell ..... Lee
William Lawrence Dumas ..... Mobile
George Dunglingson ..... Talladega
Verlie Roy Emrick ..... Jefferson
Devotie Glover Ewing ..... Lowndes
Edwin Washington Ewing ..... Lowndes
Clarence Evelyn Field ..... Jefferson
Walter Summerville Going ..... Jefferson
James Buchanan Green ..... Crenshaw
Heyman Hagedorn ..... Georgia
Leonard Park Hall ..... Jefferson
Walter Leonidas Harwell ..... Lee
Guy David Hawkins ..... Jefferson
†John David Hudson ..... Lee
Charles Jefferson Jackson ..... Montgomery
Donald Van de Water Jenkins ..... Talladega
Walter Wier Johnston ..... Calhoun
Allen Green Jones ..... Dallas
Hilary Boston Jones ..... Washington
Chauncey Smith Joseph ..... Montgomery

† Not in full standing.

Isham Kimbell ..... Clark
Frank Ragan King ..... Jackson
Edward Philip Lacey ..... Jefferson
Harry Thomas Landrum ..... Jefferson
Tracy Lay ..... Etowah
Henry Richard Luscher ..... Mobile
Isaac Sadler McAdory ..... Jefferson
John William McConnell ..... Jefferson
John McDuffie ..... Monroe
Henry McDonnell ..... Madison
Thomas Pettus McElderry ..... Talladega
William Hugh McEniry ..... Jefferson
William Monroe Meredith ..... Greene
Arthur Wilhelm Merkel ..... Jefferson
Frederick Shealy Middleton ..... Chambers
William Pittman Moon ..... Coosa
Lee Penn Montgomery ..... Lee
Edward Owen Perry ..... Georgia
†Anderson Petrinovich ..... Mobile
Forney Renfro ..... Lee
Thomas Shepard Roche ..... Mobile
James Lon Robinson ..... Jefferson
Charles McPherson Rogers ..... Sumter
James Emmet Seale ..... Sumter
William Martin Shepard ..... Mobile
Berner Leigh Shi ..... Georgia
Washington Irving Shi ..... Georgia
Solomon Kauffman Simon ..... Marengo
†John Floyd Smith ..... Calhoun
Zachary Pope Smith ..... Jefferson
Paul Stewart ..... Jefferson
Joseph Churchill Strong ..... Mobile
John Randolph St. John ..... Mobile
Albert Lee Thomas ..... Lee

† Not in full standing.

Thornton Albert Ward ..... Lee
William Francis Ward ..... Lee
†Francis Hobbs Watson ..... Dallas
William Clifford Wear ..... Lee
Robert Eubank Williams ..... Jefferson
John Mayer Wilson ..... Clark
William Mason Wilson ..... Etowah
Cullen Haddley Wimberly ..... Sumter
John Washington Wood ..... Jefferson

FRESHMAN CLASS.

Hiram Victor Arnold ..... Florida
Eric Alsobrook ..... Lee
Franklin King Beck ..... Wilcox
Frederick Rudolph Bell ..... Lee
Theodore Chesbro Bowling ..... Washington
James Seaborn Boyd ..... Montgomery
Thomas Cobb Bradford ..... Lee
Samuel Davis Brown ..... Georgia
Sylvanus Burney ..... Chambers
Dugald Herbert Carmichael ..... Jefferson
†Frank Furness Cawthon ..... Dallas
Lambert Alexander Chambliss ..... Autauga
Lemuel Jackson Cobb ..... Cherokee
Lynn Lewis Conner ..... Macon
Balius Pinckney Cooper ..... Washington
Robert Cummins ..... Dallas
†Edward James Duncan ..... Tallapoosa
Robert Lee Ellis ..... Autauga
James Chester Elmer ..... Mississippi
Edgar Ervin Esslinger ..... Madison
†Claud Belle Etheredge ..... Dallas
Willis Marone Etheridge ..... Calhoun
Frank Trimble Evans ..... Georgia
Bertram Ezekiel ..... Butler

† Not in full standing.

Edgar Earl Ferrell .....Greene
†John Heggie Findlay .....Hale
William Humphrey Foy .....Barbour
Mither William Francis .....Randolph
†Benjamin Shields Gilmer .....Choctaw
Frank Lovell Gonce .....Tennessee
Edward Alexander Graham .....Autauga
Edward Servanios Hitch .....Georgia
†James Elliott Holt .....Russell
Frank Parkinson Howard .....Macon
Percy Wilbur Hudson .....Lee
Frank Paul Hurt .....Jackson
Charles Edwin Jackson .....Madison
George Wallace Jackson .....Lee
Frederick McClendon Jenkins .....Georgia
Earl Eugene Jenks .....Mobile
Arthur Dean Jones .....Pike
Earl Kauffman .....Mobile
Albert Roy Killebrew .....Dale
Bertram Joseph Lane .....Talladega
†McCloy Harding Martin .....Lee
Coke Smith Matthews .....Jefferson
Charles Whitaker May .....Russell
George Elisha McCord .....Jefferson
Richard McCulloh .....Louisiana
Claude Cooper McLean .....Covington
Louis Walton Montgomery .....Lee
Harry Redwood Murray .....Mobile
Cicero Lewis Nelson .....Baldwin
John Haygood Paterson .....Montgomery
Wert Horace Peace .....Jefferson
John Henry Peebles .....Limestone
Monroe Thomas Penn .....Lee
Henry Clarence Perkins .....Barbour

† Not in full standing.

John Ross Philips .....St. Clair
George Wallace Postell .....Jefferson
John Henry Powell .....Lee
Marshall Gowan Price .....Marengo
Francis Esten Purifoy .....Wilcox
Frank Bellamy Rutledge .....Lee
Robert Hyde Sanders .....Hale
Walter Robert Samford .....Lee
Batt Lockard Spain .....Texas
Linwood Seale .....Sumter
Marvin Pearce Summers .....Lee
Grover Cleveland Thompson .....Macon
John Edward Thigpen .....Lowndes
Henry Howard Thornton .....Talladega
William Biggers Tucker .....Lee
Perry Williams Turner .....Colbert
Charles Spurgeon Waldrop .....Jefferson
Walter Van Weatherby .....Mississippi
Elbert Fain Webb .....Cherokee
Fletcher Gordon Webb .....Lee
James Samuel Webb .....Lee
Samuel Borders Wilson .....Talladega
John Douglas Wilkins .....Marengo
*Edward Louis Wright .....Lee
Oliver Earle Young .....Sumter

SPECIAL AND IRREGULAR STUDENTS.

Abbreviations: Ph—Pharmacy; E. & M. E.—Electrical and Mechanical Engineering; C.—Chemistry; Ag.—Agriculture; C. E.—Civil Engineering; Mech. A.—Mechanic Arts; E. E.—Electrical Engineering.

Bessie Susan Alvis ..... Lee
Ralph Calloway Armstrong ..Ph..... Lee
Robert Trammell Babgy ....C. E..... Lee
Martin Vanburen Beason...Mech. A .....St. Clair
Herman Davidson Blake...Mech. A.....Florida

* Deceased.

Hyman Blumberg..... Chambers
William Bonner.....E. & M. E.....Wilcox
Marvin Fitzpatrick Boykin..... Lee
Charles Franklin Bradshaw..... Randolph
William Jefferson Bruister...Ag..... Choctaw
Frank Barnard Clark..... Mobile
Willis Gaylord Clark....E. & M. E.....Michigan
William Rather Coleman....C. E..... Colbert
Henry Denegre..... Jefferson
Woodson Lea Ennis.....Ag..... Sumter
Arthur Fincher .....Ph..... Lee
James William Flanagan....Ph..... Lee
Daisy Douglas Foster ..... Lee
Marcus Luculus Foster .....E. E..... Etowah
William Alexander Frazer...Ph ..... Lee
Charles Williams Gonce .....Tennessee
Alexander Hamilton Green .....Florida
Kernon Hugh Gaines..... Chambers
Leonard Graham Gresham. Mech. A.....Autauga
James Coulson Harper.....C. E.....Mississippi
Ethel Julia Harwell..... Lee
Robert Hinton Hogg..... Georgia
William Dana Hubbard..E. & M. E.....Dallas
Mell Frazer Jackson.....Ph..... Lee
John Sandford Jewett.....Ph ..... Florida
William Micou Jordan .....Ph.....Elmore
Walter Maurice Jones-
Williams .....E. E..... Lee
William Jackson Marsh....Ph.....Lee
Allen Davis McLain.....Ph..... Lee
Herbert McLeod .....Ph..... Crenshaw
Allen Massilon McNeel...E. & M. E.....Montgomery
George Newburg Montgomery..... Mobile
Jabez Curry Nelson.....C. E.....Jefferson

Fenton Forest Newman ..... Talladega
Louis Milton Noll.....Ph..... Jefferson
Albert Welman Pratt .....C..... Madison
Laurens Walter Pierce...E. & M. E.....Elmore
John Vincent Pierson.....C..... Perry
Oscar Early Rutland.....Mech. A.....Lee
William Harvey Robertson....Ph ..... Jackson
Benjamin Riley Sawyer..... Ph.....Calhoun
Edward Ramsey Scott .....Tennessee
Fletcher Porter Sewell.....Ag..... Cherokee
Rufus Pew Shuptrine.....Ph.....Dallas
Julian Cassius Smith.....E. & M. E.....Macon
Hunter Molton Smith.....E. E..... Jefferson
Robert Ware Sistrunk..... Elmore
Quinton Sorrell .....C..... Talladega
Cecil Pitts Stowe.....Ph..... Lee
Benjamin Walton Taylor .....Jefferson
Roy Lee Thornton.....Ph..... Bullock
James Feagin Tompkins....Ag.....Lee
Alma Cole Tompkins..... Lee
Conrad Lee Thompson..... Mobile
James Cooper Usrey.....Ph..... Jefferson
Fletcher Peavey Whatley..Mech. A.....Lee
Judson Franklin Webb.....C. E..... Lee
St. John Wilson..... Mobile
Walter Rivers Whitman.....Ph..... Lee
Abner Melvin Windham.....Ph..... Dale

SUB-FRESHMAN CLASS.

Leslie Sheldon Abercrombie .....Macon
Leo Abraham .....Montgomery
Thomas Eaton Alexander .....Marengo
Ignacio Alfonso .....Cuba
Otis DeWitt Alsobrook .....Lee
Thomas Henry Bass .....Butler

Walter Pendleton Bass ..... Butler
Conner Benbow ..... Crenshaw
Robert Leroy Bowling ..... Washington
Edwin Matherson Bragg ..... Lee
Edward Crawford ..... Florida
Charles Edward Crawford ..... Talladega
Benjamin Harris Cross ..... Lee
James Lile Cross ..... Lee
Shelby Montgomery Cullom ..... Jefferson
Benjamin Cropp Davis ..... Mobile
John Carter Detwiler ..... Montgomery
Walter Dean ..... Cullman
Pedro Echezabal ..... Cuba
George Hardaway Frazer ..... Lee
Raphael Garcia ..... Cuba
Edward Daniel Gates ..... Dallas
Raymond David Gillespie ..... Jefferson
Howard Wilson Going ..... Jefferson
William Minthon Goodger ..... Perry
Carlos Houghton ..... Cuba
Frank Brown Johnston ..... Dallas
Washington Cleveland Jones ..... Pike
Clyde White Jones ..... Bibb
Carter Wallace King ..... Florida
Michael King ..... Florida
Cornelius Malone ..... Greene
Ulysses Claud Martin ..... Dallas
Adalberto Masvidal ..... Cuba
John Quarterman McCaskill ..... Florida
Benjamin McMillan ..... Mobile
Frederick Augustus Miller ..... Covington
David Minge ..... Hale
William Leroy Mitchell ..... Lee
Vernon Moore ..... Hale
John Robbins Nettles ..... Monroe

James Hudson Otey ..... Perry
Thomas Henry Pattison ..... Lee
William Britain Powledge ..... Lee
Jesse Henry Pryor ..... Perry
Claude Hughes Scheiffelin ..... Mobile
Edward Cooper Smith ..... Georgia
Guy Clarence Stuart ..... Washington
Robert Wilson Trimble ..... Jefferson
Charles Winston Thompson ..... Macon
Carl Venable ..... Jefferson
Ross Myron Vest ..... Jefferson
James Pennington Vickers ..... Clark
Joaquin Nilo Vila ..... Cuba
Emique Vila ..... Cuba
Lee Anderson West ..... Perry
Willis Carter West ..... Perry
Dinnis Timothy Williamson ..... Covington

SUMMARY.

Graduate Students	22
Senior Class	39
Junior Class	62
Sophomore Class	77
Freshman Class	83
Special and Irregular Students	65
Total in College Classes	348
Sub-Freshman Class	58
Total	406

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	338	Geology	43
History	227	Civil Engineering	29
French	31	Electrical Engineering.	57
German	38	Mechanical Engineer'g.	55
Latin	101	Biology	12
Mental Science	8	Drawing	293
Political Economy	33	Mechanic Arts	267
Mathematics	333	Military Department	378
Chemistry	156	Mineralogy	21
Chemical Laboratory	146	Physical Laboratory	46
Agriculture	97	Physiology	83
Physics	216	Veterinary Science	17
Botany	109	Pharmacy	41
Horticulture	17	Bacteriology	15

RESIDENCE BY STATES.

Alabama	333
Georgia	24
Florida	23
Cuba	6
Mississippi	4
Tennessee	4
Louisiana	2
Texas	2
Missouri	1
Michigan	1
Illinois	1
New York	2
Nicaragua	1
Minnesota	1
South Carolina	1
	406

MILITARY ORGANIZATION.

1901-1902.

President,
*W. L. BROUN.

Acting President,
O. D. SMITH.

Commandant,
COL. B. S. PATRICK.

Surgeon,
J. H. DRAKE.

Battalion Staff:

Cadet Captain W. D. WILLIS, Assistant to Commandant.
Cadet First Lieutenant, D. W. PEABODY, Adjutant.
Cadet Captain C. A. COLLINS, Quartermaster.
Cadet First Lieutenant M. KETCHUM, Assistant Adjutant.
Cadet Sergeant W. J. KNIGHT, Sergeant Major.
Cadet Sergeant L. E. THORNTON, Quartermaster Sergeant.

Cadet Captains:

1. J. E. D. Yonge.
2. J. B. Garber.
3. W. C. Coles.
4. H. B. Park.

Cadet First Lieutenants:

1. J. D. Farley.
2. F. J. Houston.
3. J. O. Webb.
4. W. B. Hamilton.
5. D. T. Herndon.
6. B. W. Steele.
7. E. A. Washington.
8. E. I. McBryde.

Cadet Second Lieutenant:

1. E. L. Carroll.

Cadet First Sergeants:

1. H. E. Davis.
2. W. W. Davis.
3. D. Chipley
4. H. M. Yonge.

*Died January 23, 1902.

Cadet Sergeants:

1. T. J. Dowdell.
2. A. M. Avery.
3. P. M. Marshall.
4. W. W. Rutland.
5. J. H. Mitchell.
6. W. L. Thornton.
7. E. Taylor.
8. W. W. Dinsmore.
9. J. D. Walker.
10. G. B. Hill, (Color Sergeant.)
11. P. Rigney.
12. R. P. Burke.
13. W. M. Turnley.
14. G. F. Freeman.
15. T. A. Caddell.
16. E. C. Haynie.
17. H. F. Troutman.

Cadet Corporals:

1. B. L. Shi.
2. J. H. Childs.
3. J. McDuffie.
4. F. S. Middleton.
5. W. L. Dumas.
6. C. S. Joseph.
7. W. M. Wilson.
8. J. L. Robinson.
9. T. Lay.
10. J. S. Chambers.
11. W. S. Going.
12. C. J. Jackson.
13. T. P. McElderry.
14. H. R. Luscher.
15. A. G. Jones.
16. W. L. Harwell.

THE A. P. I. CADET BAND.

M. THOMAS FULLAN, Bandmaster.

J. C. HARPER, Principal Musician.

R. C. Armstrong.
H. V. Arnold.
F. C. Atkinson.
A. M. Avery.
F. G. Bell.
H. Blumberg.
L. J. Cobb.
M. Ellis.
V. R. Emrick.
G. H. Frazer.
W. L. Harwell.
G. D. Hawkins.
H. Hagedorn.
J. D. Hudson.
A. W. Merkel.
G. N. Montgomery.
J. P. Rembert.
G. C. Sequiera.
S. K. Simon.
J. R. St. John.
E. R. Taber.
A. L. Thomas.
A. Petrinovich.
W. V. Weatherby.

Cadets of the graduating class who were reported to the Adjutant General, U. S. Army, for publication in the "Official Army Register" as having ranked highest in the Military Department:

1889.

A. St. Dunstan.
B. H. Crenshaw.
A. J. Burr.

1890.

F. D. Milstead.
J. W. Bivins.
G. W. Emory.

1891.

L. E. Baker.
C. C. Johnson.
F. J. Bivins.

1892.

H. F. Dobbin.
A. L. Jones.
C. L. Brown.

1893.

Joel Dumas.
C. H. Smith.
J. F. Webb.

1894.

C. S. Andrews.
P. P. McKeown.
R. T. Dorsey.

1895.

S. L. Coleman.
H. H. Smith.
L. B. Gammon.

A. L. Alexander.
W. L. Fleming.

1897.

P. G. Clark.
G. M. Holley.
G. N. Mitcham.

1898.

A. H. Clark.
A. McB. Ransom.
John Haralson.

1899.

I. F. McDonnell.
A. H. Feagin.
T. W. Wert.

1900.

E. M. Mason.
H. P. Powell.
C. W. Nixon.

1901.

A. F. Jackson.
J. D. Foy.
P. S. Haley.

1896.

W. M. Williams.

REQUIREMENTS FOR ADMISSION.

All applicants for admission should present testimonials of good moral character, and those who come from other colleges must present certificates of honorable discharge.

To enter the Freshman class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography and History of the United States.

2. English —(a) English grammar as contained in any standard text. (b) An examination upon sentences containing incorrect English. (c) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar, and division into paragraphs.

(a) *Reading.* The composition of 1902 will be upon subjects drawn from one or more of the following works in English Literature: (1) Hughes's *Tom Brown at Rugby;* (2) Southey's *Life of Nelson;* (3) Shakespeare's *Julius Caesar;* (4) Longfellow's *Evangeline;* (5) Scott's *Ivanhoe;* (6) Shakespeare's *Merchant of Venice;* (7) Irving's *Sketch Book;* (8) Macaulay's *Essay on Milton;* (9) Scott's *Marmion;* (10) Dickens's *David Copperfield.*

The candidate will be required to present evidence of a general knowledge of the subject matter, and to answer simple questions on the lives of the authors. This part of the examination is intended only to test a general knowledge of the substance of the books.

(b) *Study and Practice.* This part of the examination presupposes the thorough study of the style of the work, and will be upon *Julius Caesar* and the *Essay on Milton.*

Preparation and examination on these works will be necessary before the student is classed as regular in any course.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers; the metric system; percentage, including interest and discount; proportion. (b) Algebra to quadratic equations; especial preparation is urged in *fundamental operations, factoring, multiples, divisors* and *fractions;* two books of geometry.

4. Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Cæsar, in addition to the above subjects.

In pronouncing Latin it is recommended that $\bar{a}$ be pronounced as in *father*, $\breve{a}$ as the *a* in *Cuba;* $\bar{e}$ as in *prey;* $\breve{e}$ as in *men;* $\bar{i}$ as in *machine*, $\breve{i}$ as in *cigar;* $\bar{o}$ as in *old;* $\breve{o}$ as in *obey;* $\bar{u}$ as in *rule;* $\breve{u}$ as in *full;* *j* as *y* in *yard;* *c* always as *k* in *king;* *g* always as *g* in *get.*

For admission to the higher classes, students should be prepared to stand satisfactory examination in all of the studies of the lower classes, as shown in the course of study. Students applying for admission to the sophomore class will be examined in mathematics through quadratic equations and logarithms in Algebra, and on seven books in geometry. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on these subjects.

It is absolutely essential that students who hope to succeed should be well grounded in Arithmetic, Algebra, and Geometry.

A working knowledge of the metric system should also be obtained.

ADMISSION ON CERTIFICATE.

Appicants will be admitted without examination on presenting a certificate from any of the CERTIFICATE SCHOOLS named herein.

The following educational institutions having made application to be correlated to this College and having presented an approved course of study, are hereby declared to be CERTIFICATE SCHOOLS, and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the fresh-
"man class *without examination* upon the certificate of the presi-
"dent or principal showing definitely that such students have
"completed satisfactorily all the studies required for admission, as
"stated in the catalogue and are otherwise admissible."

The privilege of admitting students of the Sophomore class on certificate will be granted only to those approved schools that have had a continuous existence for five years or more and have previously had pupils admitted to that class without conditions.

The following form of certificate will be used:

I hereby certify that A....., B.....has attended the (*name the school or academy*) for.....years and has studied the following subjects:

in History.....(*name the books*)
in English.....(*name the books*)
in Algebra.....(*state amount accomplished*)
in Geometry.....(*state amount accomplished*)
in Latin.....(*state books read*)

and having passed a satisfactory examination on these subjects as required in the Catalogue for admission to the .....class, I recommend him for the same.

Admission by certificate is regarded as provisional.

That is, though admitted to the class for which the certificate calls, the applicant may be required to take special examination in any subject in which his preparation proves unsatisfactory, or, after a fair trial, he may be dropped to a lower class, if he fails to maintain standing in the class to which he may be admitted.

CERTIFICATE SCHOOLS.

University Military School, Mobile .....J. D. Wright.
Verner Military Institute, Tuscaloosa.....W. H. Verner.
University School, Montgomery.....J. M. Starke.
Mt. Willing High School, Mt. Willing.....J. Knight.
State Normal School, Jacksonville.....C. W. Daugette.
Male Academy, Huntsville.....F. Puryear.
Furman Academy, Livingston .....L. A. Cockrell.
High School, Opelika .....J. M. Smallwood.
University Military School, Clanton .....E. Y. McMorries.
Eighth District Agricultural School, Athens.....M. K. Clements.
Sixth District Agricultural School, Hamilton.....G. A. Holley.
Eutaw Male Academy, Eutaw .....H. C. Horton.
Boys' High School, Anniston .....H. C. Gunnels.
Taylor's School, Birmingham .....W. P. Taylor.
University High School, Birmingham..I. J. White, M. B. Dickinson.
Fourth District Agricultural School, Sylacauga.....A. G. Seay.
Gaylesville High School .....John R. Ray.
Carrollton Academy .....L. V. Rosser.
Ninth District Agricultural School, Blountsville....J. A. B. Lovett.
Gadsden High School .....I. W. Hill.
Boyd High School, Ramer .....B. H. Boyd.
Dadeville High School .....J. D. Lane.
Prattville High School .....A. W. Holstun.
Eufaula High School .....F. L. McCoy.
Union Springs High School .....J. M. Sanders.
Montgomery High School .....C. L. Floyd.
Calera Academy .....C. C. Slaton.
Southern Agricultural School, Abbeville .....J. B. Murphy.
Barnes's School, Montgomery .....E. R. Barnes.
Jackson Agricultural School .....J. B. Murphy.
Spring Lake School .....W. C. Griggs.
Pensacola Classical School .....H. C. Armstrong.
Eufaula District Academy .....R. E. Brooks.

ADMISSION OF YOUNG WOMEN.

The privilege of becoming students in this college is granted by the Trustees to young women of mature mind and character, on the following conditions:

The applicant must be seventeen years of age, and if a candidate for a degree, be able to pass a satisfactory examination in each of the four subjects as named below.

If the applicant is a candidate for admission as a special or irregular student, she must be able to pass a satisfactory examination in two of the subjects named, and may be admitted at an age less than seventeen, with a resident of Auburn acting as guardian, if application is approved by the Faculty.

(a) In English—Proficiency in spelling and punctuation; Grammar (Lockwood-Whitney); Rhetoric (Lockwood's Lessons and Carpenter's Rhetoric); Scudder's Masterpieces of American Literature; Syle's From Milton to Tennyson.

For requirements in reading in literature see page 41.

(b) In History—Macy's Our Government; Chambers's History of the United States; Myers's General History.

(c) In Mathematics—Arithmetic; Algebra, including quadratic equations, logarithms and series; Plane and Solid Geometry; Plane and Spherical Trigonometry, as in Wentworth.

(d) In Latin—Grammar, including the forms and syntax; Jones's Latin Prose Composition; translation of selections from Cæsar, Nepos, Virgil, Cicero's Orations, Cicero's Letters, or the equivalent.

The equivalents of these subjects, as in above text-books, may be substituted.

Botany will constitute a required part of the general course for young women who are candidates for a degree.

When admitted, upon complying with the conditions above stated, they may enter upon the study of any subject taught in the College and join any class, for which, upon examination, they may be found qualified. The only condition imposed will be that they engage in earnest study, and attend the exercises regularly. They will board in the town with private families and attend college only at the hours of their exercises.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 10th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the freshman class are admitted to the sub-college department, provided they are fifteen years of age, and are found after examination qualified to profit by the instruction given. Those who, after admission, are inattentive to their studies, and neglectful of their duties will be required to withdraw, but those who are studious and make sufficient progress will be advanced to full admission to the freshman class when they are qualified to pass satisfactorily the required examinations.

Students, upon their arrival at Auburn, will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of electing studies in the lower classes is not granted to young students nor to their parents.

The Faculty will assign a student, on admission, to that class of a prescibed course for which he is qualified; and for special reasons, approved by the Faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age that are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study for which they may be qualified.

For an applicant to enter upon the study of Electrical and Mechanical Engineering as a special or irregular student, he must have studied algebra through quadratics and logarithms, plane geometry, and plane trigonometry.

The professor in charge of a department will decide by examination whether a special student is prepared for admission to his class.

A student who does not take all the studies in a class of one of the degree courses, as prescribed in the catalogue, and is permitted to take an irregular course, will be assigned to a member of the Faculty, who will act as his special adviser, and when his course of study has been approved by the Faculty, no other change will be permitted without the endorsement of his adviser.

Regular students who fail to pass satisfactory final examinations in any one study become irregular students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students, candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

ADMISSION TO HIGHER CLASSES.

At the beginning of each term a student in the sub-freshman class may, on application approved by the Faculty, be examined for admission to the freshman class in history, English, mathematics, and be admitted to the freshman class in that subject only.

Students who have completed satisfactorily all the studies of the sophomore class, as prescribed in the catalogue, in any one of the regular degree courses, can enter, without condition, the junior class in any course, except in the general course, or the course in pharmacy, in which Latin is required.

Students who are admitted to the junior class from other institutions, on examinations in English, Latin, and mathematics, and who have not completed all the studies of the sophomore class, in order to graduate, will be required to complete the course in chemistry and history as taught in the sophomore class.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical, and Natural Sciences, with their applications; Agriculture; Biology; Mechanics, Astronomy, Mathematics; Drawing; Civil, Electrical, and Mechanical Engineering; Physiology and Veterinary Science, Pharmacy; English, French, German and Latin Languages; History, Political Economy; Mental and Moral Sciences.

The studies are arranged in regular courses so as to offer liberal and practical education as a preparation for the active pursuits of life.

There are six degree courses for undergraduates, each leading to the degree of Bachelor of Science, (B. Sc.) and requiring four years for its completion.

I. COURSE IN CHEMISTRY AND AGRICULTURE.

II. COURSE IN CIVIL ENGINEERING.

III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

IV. GENERAL COURSE.

V. COURSE IN PHARMACY.

VI. COURSE IN CHEMISTRY AND METALLURGY.

There are also three partial courses, each requiring two years for its completion:

VII. TWO-YEAR COURSE IN AGRICULTURE.

VIII. TWO-YEAR COURSE IN MECHANIC ARTS.

IX. TWO-YEAR COURSE IN PHARMACY.

Course I. includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture or chemical pursuits.

Course II. includes the principles and applications of the sciences that directly relate to civil engineering,

and is adapted to those who expect to enter that profession.

Course III. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged for the profession of electrical and mechanical engineering.

Course IV. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching or in some commercial or professional business.

Course V. includes, besides the general education of course IV. in the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course VI. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in the scientific branches relating thereto. Students taking this course also pursue the study of German and French during the Junior and Senior years, and are thus prepared to utilize for reference the scientific journals and works published in those languages.

Courses VII. VIII. IX. have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, will be awarded a certificate of proficiency in said subject.

Students who complete either of the two-year courses will, on

passing a satisfactory examination, receive certificates indicating their attainments.

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every candidate for a degree will be required to stand this special examination during the second term of the Senior year.

Declamations and themes or orations are required of all regular students pursuing courses leading to a degree.

POST-GRADUATE COURSES.

A more extended post-graduate course of study may be taken by a graduate of this College or of any other institution of equal grade. The completion of a course which leads to a post-graduate degree of Master of Science requires one year's residence at the College, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the Faculty.

The candidate must also present to the Faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination, at the close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the Faculty.

The subject of the thesis must be submitted to the Faculty for approval prior to January 1st, and the thesis given to the professor by May 1st.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the general regulations as other students, and pay the same fees, but are exempt from all military duty.

The following courses are prescribed for the degree named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the Faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and Chemistry.

3. *Master of Science in Civil Engineering.*—Civil Engineering, Mathematics, Analytical Mechanics.

4. *Master of Science in Electrical and Mechanical Engineering.*—Electrical Engineering, Mechanical Engineering.

5. *Master of Science in Mining Engineering.*—Students who have receive the degree of B. Sc. in engineering, civil, or electrical and mechanical, or in the course of chemistry and mettallurgy, or who have prosecuted an equivalent course of study, can enter upon a special course of mining engineering, which includes the following subjects of study:

Industrial Chemistry, Analytic Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, with practical work in the field, Mining Machinery with the applications of steam and electricity to the various operations connected with the exploitation of mines.

The student, if a candidate for a degree, will also be required to prosecute the necessary studies in that course of engineering in which he has not graduated. This course of study will be under the charge of the professors in the different engineering departments, the professor of Chemistry, and the professor of Mineralogy and Geology.

Special Students in Post-Senior Studies.—Students who are not graduates, but are qualified in special subjects to prosecute post-senior studies, and desire to prepare themselves more thoroughly for professional or special work in any one of the departments of engineering, in chemistry or pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the Faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given the same year.

PROFESSIONAL DEGREES.

The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Miping Engineer, or Pharmaceutical Chemist will be given two years after receiving the degree of Master of Science, provided the intervening time of two years has been spent in a responsible position in practical engineering work in that department in which he received the degree of Master of Science, or in practical pharmacy, and an approved thesis is submitted to the Faculty, with a report of the character of the work done.

SPECIAL ONE-YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting

in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of scientific agriculture.

PHOTOGRAPHY.

During the session there will be given by Professor Mell a course of twelve lectures on photography. This course will be elective, and the instruction will be open to any student that may desire to learn how to make pictures. It will be necessary for each student to provide himself with an outfit that will cost from $11.50 to $16.00.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this Institute, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CHEMISTRY.
II. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.
III. AGRICULTURE.
IV. BOTANY.
V. MINERALOGY.
VI. BIOLOGY.
VII. TECHNICAL DRAWING.
VIII. MECHANIC ARTS.
IX. PHYSICS.
X. ELECTRICAL ENGINEERING.
XI. MECHANICAL ENGINEERING.
XII. PHYSIOLOGY AND VETERINARY SCIENCE.
XIII. PHARMACY.

NOTE.—Special work in English or History may be taken by students in the general course as a substitute for laboratory work.

I. COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture (b).
3. Drawing.	3. Drawing.	3. Drawing.
2. Physiology.	2. Physiology.	2. Physiology.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	2. Horticulture.
4. Botany (Lab'y.)	4. Botany (Lab'y.)	4. Botany (Lab'y.)
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
2. Clinical Lab'y.	2. Clinical Lab'y.	2. Clinical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science (d).	2. Mental Science (d).	2. Mental Science (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
5. Biology.	5. Biology.	5. Biology.
2. Agricultural Chemis.	2. Agricultural Chemis.	2. Agricultural Chemis.
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
2. Clinical Lab'y.	2. Clinical Lab'y.	2. Clinical Lab'y.

(a) Begins March 1st. (b) Also Practical Agriculture.
(c) Begins Feb. 15th. (d) French or German may be substituted.

II. COURSE IN CIVIL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture (b).	2. Agriculture (b).	2. Agriculture (b).
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y. Mechanic Arts (c).	6. Lab'y. Mechanic Arts (c).	6. Lab'y. Mechanic Arts (c).
1. Field Work, Engineering.	1. Field Work, Engineering.	1. Field Work, Engineering.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature, (d).	2. Political Economy, (d).	2. Political Economy, (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.

(a) Begins March 1st.
(b) For Agriculture may be substituted Physical Laboratory.
(c) Or Mineralogy.
(d) For Eng. Lit. and Pol. Econ. may be substituted for French or German.

5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
4. Mech. Eng., Lab'y. Field Work, Engineering.	4. Mech. Eng., Lab'y. Field Work, Engineering.	4. Mech. Eng., Lab'y. Field Work, Engineering.

III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week. In Freshman and Sophomore classes the same studies are prescribed as in Course II in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
4. Electrical Engineering.	4. Electrical Engineering.	4. Electrical Engineering.
3. Mechanical Engineering.	3. Mechanical Engineering.	3. Mechanical Engineering.
4. Mechanical Drawing.	4. Mechanical Drawing.	4. Mechanical Drawing.
4. Electrical Lab'y.	4. Electrical Lab'y.	4. Electrical Lab'y.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. Eng. Literature, (a).	2 Political Economy, (a).	2. Political Economy, (a).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Electrical Engineering.	5. Electrical Engineering.	5. Electrical Engineering.
5. Mechanical Engineering.	5. Mechanical Engineering.	5. Mechanical Engineering.
2. Electrical Designing.	2. Electrical Designing.	2. Electrical Designing.
6. Electrical Lab'y.	6. Electrical Lab'y.	6. Electrical Lab'y.
4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.
1. Military Science.	1. Military Science.	1. Military Science.

(a) French or German may be substituted.

II. COURSE IN CIVIL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture (b).	2. Agriculture (b).	2. Agriculture (b).
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y. Mechanic Arts (c).	6. Lab'y. Mechanic Arts (c).	6. Lab'y. Mechanic Arts (c).
1. Field Work, Engineering.	1. Field Work, Engineering.	1. Field Work, Engineering.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature, (d).	2. Political Economy, (d).	2. Political Economy, (d).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.

(a) Begins March 1st.
(b) For Agriculture may be substituted Physical Laboratory.
(c) Or Mineralogy.
(d) For Eng. Lit. and Pol. Econ. may be substituted for French or German.

5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
4. Mech. Eng., Lab'y. Field Work, Engineering.	4. Mech. Eng., Lab'y. Field Work, Engineering.	4. Mech. Eng., Lab'y. Field Work, Engineering.

III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week. In Freshman and Sophomore classes the same studies are prescribed as in Course II in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
4. Electrical Engineering.	4. Electrical Engineering.	4. Electrical Engineering.
3. Mechanical Engineering.	3. Mechanical Engineering.	3. Mechanical Engineering.
4. Mechanical Drawing.	4. Mechanical Drawing.	4. Mechanical Drawing.
4. Electrical Lab'y.	4. Electrical Lab'y.	4. Electrical Lab'y.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. Eng. Literature, (a).	2 Political Economy, (a).	2. Political Economy, (a).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Electrical Engineering.	5. Electrical Engineering.	5. Electrical Engineering.
5. Mechanical Engineering.	5. Mechanical Engineering.	5. Mechanical Engineering.
2. Electrical Designing.	2. Electrical Designing.	2. Electrical Designing.
6. Electrical Lab'y.	6. Electrical Lab'y.	6. Electrical Lab'y.
4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.
1. Military Science.	1. Military Science.	1. Military Science.

(a) French or German may be substituted.

IV. CHEMISTRY AND METALLURGY.

The numerals opposite the subjects indicate the number of hours per week. In the Freshman class and Sophomore classes the same studies are prescribed as in either course I in Agriculture and Chemistry or in course V in General Course.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Organic Chemistry.	2. Organic Chemistry.	2. Organic Chemistry.
3. German.	3. German.	3. German.
4.*Mineralogy (Lab'y.)	4. Mineralogy (Lab'y.)	4. Mineralogy (Lab'y.)
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English and Literature.	2. Political Economy.	2. Political Economy.
2. Physics.	2. Physics.	2. Astronomy.
3. German.	3. German.	3. German.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
2. Metallurgy and Engineering Chem.	2. Metallurgy and Engineering Chem.	2. Metallurgy and Engineering Chem.
1. Analytical Chemisty.	1. Analytical Chemisty.	1. Analytical Chemisty.
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.

V. GENERAL COURSE.

The numbers opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
3. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	2. Agriculture.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	3. Drawing.
3. Military Drill.	3. Military Drill.	6. Mechanic Art Lab'y.
		3. Military Drill.

*Mechanic Art. Lab. may be substituted.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Gen'l. Chemistry.	3. Gen'l. Chemistry.	3. Gen'l. Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
3. Latin.	3. Latin.	3. Latin.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y. Work (b).	6. Lab'y. Work (b).	6. Lab'y. Work (b).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English.	2. Pol. Econ. (c).	2. Political Economy.
2. Mental Science.	2. Mental Science.	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Frencn.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science.	1. Military Science.
6. Lab'y. Work (b).	6. Lab'y. Work (b).	6. Lab'y. Work (b).

VI. COURSE IN PHARMACY.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

(a) Begins March 1st. (b) The student may elect the laboratory of any department for which he may be qualified. (c) Begins Feb. 15

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Gen'l Chemistry.	3. Gen'l Cnemistry.	3. Gen'l Chemistry.
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. Physics.	3. Physics.	3. Physics.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Botanical Lab'y.	4. Botanical Lab'y.	4. Botanical Lab'y.
3. English (b).	3. English (b).	3. English (b).
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
9. Pharmaceutical Lab.	9. Pharmaceutical Lab.	9. Pharmaceutical Lab.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Biology.	5. Biology.	3. Biology.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Toxicology.
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
12. Pharmaceutical Lab.	12. Pharmaceutical Lab.	12. Pharmaceutical Lab.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Science.	1. Military Science.	1. Military Science.
3. Materia Medica.	3. Materia Medica.	3. Bacteriology.

VII. TWO-YEAR COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Laby.	6. Mechanic Art Laby.	6. Mechanic Art Laby.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	3. Drawing.	3. Drawing.
12. Mechanic Art Lab.	12. Mechanic Art Lab.	12. Mechanic Art Lab.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) Begins March 1st. (b) French or German may be substituted.

VIII. TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Gen'l. Chemistry.	3. Gen'l. Chemistry.	3. Gen'l. Chemistry.
4. Agriculture.	4. Agriculture.	4. Agriculture.
2. Physiology.	2. Physiology.	2. Physiology.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
12. Practical Agriculture.	12. Practical Agriculture.	12. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

IX. TWO-YEAR COURSE IN PHARMACY.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
3. Gen'l. Chemistry.	3. Gen'l. Chemistry.	3. Gen'l. Chemistry.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. English.	3. English.	3. Botany.
2. Physiology.	2. Physiology.	2. Physiology.
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
6. Mechanic Art Lab'y (a).	6. Mechanic Art Lab'y (a).	6. Mechanic Art Lab'y (a).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
5. Pharmacognosy.	5. Pharmacognosy.	5. Pharmacognosy.
12. Pharmaceutical Lab'y.	12. Pharmaceutical Lab'y.	12. Pharmaceutical Lab'y.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Toxicology.
3. Materia Medica.	3. Materia Medica.	3. Bacteriology.
6. Botanical Lab'y.	6. Botanical Lab'y.	6. Botanical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) or Physical Laboratory.

SCHEDULE OF EXERCISES.

HOURS	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
I. 8–9	4. Algebra. 3. Latin. 2. Pharmacy. 2. Mec. Engineer'g. 1 and 2. Drawing. 1. Elec. Engineer'g. 1. Biology. 1. German.	4. Geometry. 3. Agriculture. 3. Latin. 2. German. 2. Botany. 1 and 2. Drawing. 1. Elec. Engineer'g. 1. Mental Science.	4. Algebra. 3. Latin. 2. Pharmacy. 2. Vet. Science. 2. Mec. Engineer'g. 1. Biology. 1 and 2. Drawing. 1. Elec. Engineer'g. 1. German.	4. Geometry. 3. Latin. 2. German. 2. Botany. 2. Mec. Engineer'g. 1 and 2. Drawing. 1. Mental Science. 1. Elec. Engineer'g.	4. Algebra. 3. Latin. 2. Pharmacy. 2. Veterinary Sci. 1 and 2. Drawing. 1. Biology. 1. Elec. Engineer'g. 1. German.	Exercises in Elocution.
II. 9–10	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Elc. Engineer'g. 2. Latin. 1. Calculus. 1. Biology (Lab.)	4. History. 3. Physiology. 2. Civ. Engineer'g. 2. Elc. Engineer'g. 2. Botany. 1. Chemistry. 1. French.	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Elc. Engineer'g. 2. Latin. 1. Calculus. 1. Vet. Science. 1. Pharmacognosy.	4. History. 3. Agriculture. 2. Civ. Engineer'g. 2. Botany. 2. Elc. Engineer'g. 1. Chemistry. 1. French.	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Latin. 2. Mec. Drawing. 1. Calculus. 1. Vet. Science.	Military Drill.
III. 10-11	3. English. 2. Physics. 1. Civ. Engineer'g. 1. Biology (Lab.) 1. Latin. 1. Mec. Engineer'g.	4. English. 3. Botany, (2, 3.) 3. History (1, 2.) 2. French. 2. Mec. Drawing. 1. Machine Design. 1. Pharmacognosy. 1. Biology. 1. Civ. Engineer'g. 1. Mec. Engineer'g.	3. English. 2. Physics. 1. Latin. 1. Civil Engineer'g. 1. Biology. 1. Mec. Engineer'g.	4. English. 3. History (1, 2.) 3. Botany, (2, 3., 2. French. 1. Civ. Engineer'g. 1. Mec. Engineer'g. 1. Machine Desi'g. 1. Pharmacognosy.	3. English. 2. Physics. 1. Civ. Engineer'g. 1. Pharmacognosy. 4. History (3.) 1. Mec. Engineer'g.	Mechanic Arts. Chemical Lab'y. Electrical Lab'y. Physical Lab'y. Veterinary Clinics. Field Engineer'g.

SCHEDULE OF EXERCISES—Continued.

HOURS	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
IV. 11–12	4. Physics. 4. Mechanic Arts. 4. Agriculture (3.) 4. Latin (1, 2.) 3. Drawing. 2. Mathematics. 2. Chemistry. 2. Pharmacognosy. 1. English (1, 2.) 1. Pol. Econ. (2, 3).	4. Latin. 3. Drawing. 2. Horticulture. 2. Mathematics. 2. Chemistry Agr. 2. Pharmacognosy. 1. French. 1. Physics.	4. Physics (1, 2.) 4. Latin (3.) 4. Mechanic Arts. 3. History (1, 2.) 3. Botany (2, 3.) 2. Mathematics. 2. Chemistry. 2. Pharmacognosy. 1. English (1, 2.) 1. Pol. Econ. (2, 3.)	4. Latin. 3. Physiology. 2. Horticulture. 2. Mathematics. 2. Chemistry Ag. 1. French. 1. Physics.	4. Physics (1, 2.) 4. Mechanic Arts. 4. Agriculture (3). 4. Latin (1, 2.) 3. Drawing. 2. Mathematics. 2. Chemistry. 2. Pharmacognosy. 1. Military Science.	1. Pharmaceutical Lab'y. 3. Mechanic Arts. Chemical Lab'y. Electrical Lab'y. Physical Lab'y. Veterinary Clinics. Field Engineer'g.
V. 12–1	4. Drawing. 4. Mechanic Arts. 3. Mathematics. 2. English. 1. Elec. Design'g. 1. French. 1. Pharmacy. 1. Eng. Chem. and Metallurgy.	3. Mathematics. 2. English. 1. Geology. 1. Pharmacy.	4. Drawing. 4. Mechanic Arts. 3. Mathematics. 2. German. 2. Anal. Chemist'y. 1. Pharmacy. 1. Eng. Chem. and Metallurgy. 1. Elec. Designing.	3. Mathematics. 2. English. 1. Geology. 1. Pharmacy.	4. Drawing. 4. Mechanic Arts. 3. Mathematics. 2. Military Tactics. 1. Elec. Designing. 1. Pharmacy.	3. Mechanic Arts. Chemical Lab'y. Electrical Lab'y. Physical Lab'y. Veterinary Clinics. Field Engineering.
P. M. VI, VII 2–4	4. Mechanic Arts. 3. Field Work Agr. 1 & 2 Lab. Chemistry. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Elec. Lab. Work. Physical Lab y.	3. Mechanic Arts. 2. Mineralogical Lab. Military Drill (*) 1. Mech. Lab'y. Elec. Lab'y. Work. 1 & 2 History.	4. Mechanic Arts. 3. Field Work. Agr. 1 & 2 Laby. Chem. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Ex'cis in Elocut'n. Elec. Lab. Work. Physical Laby.	3. Mechanic Arts. 2. Mineralogical Lab. Military Drill (*). 1. Mech. Lab'y. Elec. Lab'y. Work. 1 & 2 History.	4. Mechanic Arts. 3. Field Work Agr. 2. French. 1 & 2 Lab. Chem. 1 & 2 Field Work, Engineering. 1 & 2 Mach. Work. Ex'cis. in Elocut'n. Elec. Lab. Work. Physical Lab'y.	

Chapel services daily at 7:45 a. m. * From 4:30 to 5:30 p. m.
Numbers prefixed denote classes—1 denotes senior, 2 junior, etc. Numbers affixed—(1), (2), (3), denote terms.

DEPARTMENTS OF INSTRUCTION.

MATHEMATICS.

PROFESSOR SMITH,

ASSOCIATE PROFESSOR CRENSHAW.

INSTRUCTOR PATRICK.

The subjects taught in the different classes in this department are as follows:

FRESHMAN CLASS. Algebra through quadratic equations and series, geometry (seven books Wentworth), original solutions of exercises.

SOPHOMORE CLASS. Solid geometry, plane and spherical trigonometry, surveying, mensuration.

JUNIOR CLASS. Analytical geometry, descriptive geometry, differential calculus.

SENIOR CLASS. Differential and integral calculus.

Two objects are sought to be obtained: First, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical apppli-cations.

Theoretical and practical instruction is given to the sophomore class in land surveying, mapping, plotting and computing areas, etc., also in the theory, adjustment and use of instruments.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

The completion of this course, common to all students, lays the foundation for the pure and applied mathematics of the mechanical and engineering courses.



BOTANICAL LABORATORY.

Analytical geometry, descriptive geometry, and calculus are pursued in the engineering courses. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of the principles and formulas.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Wentworth's Trigonometry, Robbins' Surveying, Wentworth's Analytical Geometry, Faunce's Descriptive Geometry, Taylor's Calculus, Johnson's Differential Equations, Osborne's Problems, Peck's Determinants.

GEOLOGY AND BOTANY.

PROFESSOR MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other natural deposits of minerals in the State. Mineral springs, the origin of ore deposits, and the geological relations of soils are carefully studied.

There is also a course of advanced work in practical geology for post-graduate students. This subject is pursued by applicants for the degrees of master of science and mining engineer.

The junior classes in civil and mining engineering, chemistry and metallurgy, study mineralogy through the entire session. This work consists of a thorough course in blow-pipe analysis of the ordinary minerals, and lectures upon crystallography, with instruction how to measure crystals and determine the physical con-

stants of minerals. An effort is made to familiarize the student with all the economic ores and the rocks entering into the composition of soils.

Botany.—The students of the sophomore class begin the study of botany the first of March, and continue it through the remainder of the session. Careful experiments are conducted in the lecture room explaining the formation and germination of seed, the growth into the mature plant, and the various functions performed by the plant in its development. Each student is required to keep careful notes illustrated with drawings of the various organs of the plant under examination. A limited amount of work is done in classification and nomenclature.

In the junior class, in the course of chemistry and agriculture, two terms are devoted to systematic and structural botany, and to advanced laboratory work with the microscope in the preparations of specimens showing plant structure; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microsopes of the most improved patterns, and all necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students.

The third term is devoted to the study of physiology of plants in order to understand the functions of the various organs after completion of the work in the histological laboratory.

FACILITIES FOR WORK.

Geology.—The department is equipped with models of Mount Shasta, the earthquake of 1887 in Japan, glass crystals for teaching crystallography; charts and maps of the geology of America and Europe; Colt's lantern complete with oil, oxy-hydrogen and automatic electric lamps; a large assortment of fine lantern slides representing geological formations in this country and abroad; well

equipped mineralogical laboratory for thirty students, supplied with a collection of representative minerals, and models of crystals.

Botany.—The facilities for teaching this subject are as follows: Auzoux's clastic models of seeds and flowers; a large collection of pressed plants of Alabama and other sections mounted and catalogued. There is also a laboratory for practical work in botany equipped with slate-topped tables for twenty-eight students; dissecting and compound microscopes of Zeiss, Leitz, and Bausch & Lomb; projection microscopic apparatus; microtomes by King and Bausch & Lomb; all the necessary glassware and smaller dissecting instruments required in a well equipped laboratory. The Zeiss compound microscope used by the professor for experiment work in connection with the station is supplied with Abbe's illuminating apparatus, slide changers, Abbe's camera lucida, polarizers, apochromatic objectives (16mm, 8 mm, 4mm, and homogeneous immersion), oculars (2, 3, 8, 12, 18), and photographic eye-pieces with micrometer. This laboratory is well lighted with gas and electricity and with a good exposure for ample sunlight.

In connection with the department there is a photographic darkroom and an excellent photographic outfit, consisting of cameras varying in size from 4x5 to 6½x8½ inches; Bausch & Lomb's professional photo-micro camera extending to eight feet; Zeiss's anastigmat photographic lens, 6½x8½, fitted with Bausch & Lomb's diaphragm shutter and Zeiss's wide angle lens, 6½x8½, all mounted in aluminum; Clark's lens fitted with diaphragm shutter; the accessory apparatus and chemicals required for first-class work in photography.

The students have access to the botanical garden where experiments in grass culture and many other plants of interest to the farmer are conducted by the professor.

TEXT-BOOKS.

LeConte's Geology, Tarr's Economic Geology, Dana's Mineralogy, Crosby's Tables for Determining Minerals, Bergen's Botany, Mell's Laboratory Guide, and notes of lectures.

CIVIL ENGINEERING AND DRAWING.

PROFESSOR LANE.

ASSISTANT HALEY.

The special studies in this department begin in the junior class, and require a good knowledge of algebra, geometry, trigonometry, and analytical mechanics. They are as follows:

Junior Class.—Simple, compound, reversed and parabolical curves, turn-outs and crossings, leveling, gradients, setting slope stakes, etc.

Special attention will be paid in this class to the location, construction, drainage and maintenance of country roads; and the various pavements and foundations for the same.

Senior Class—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought iron, steel and other metals; limes, cements, mortars and their manufacture; paints and other preservatives; classification of strains and a general mathematical discussion of same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds, their construction and strains determined mathematically and graphically; common roads, their coverings, and location, and construction of railroads; navigable, irrigation and drainage canals; rivers and seacoast improvements.

Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior Class—Henck's Field Book for Railway Engineers and Byrne's Highway Construction.

Senior Class—Wheeler's Civil Engineering and Von Ott's Graphic Statics.

DRAWING.

All of the students of the freshman and sophomore classes are required to take drawing; but only the students in civil engineering in the junior and senior classes.

The freshman class is taught linear and free-hand drawing. The sophomore class is instructed in the principles of orthographic and isometric projections, shades, shadows, perspective and tinting. In the junior class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and tinting; also sketches of tools and machines, plans and elevations and cross-sections of buildings, and blue-prints. The senior class makes topographical drawings and drawings of machines, roofs, bridges, etc., to different scales, and blue-prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Freshman Class—Kitchener's Geometrical Note Book, Webb, Ware & Zaner's Practical Freehand Drawing.

Sophomore Class—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior Class—Davidson's Building Constructions, Davidson's Drawing for Mechanics and Engineers, plates belonging to the college, Keuffel & Esser's Alphabet.

Senior Class—French, English and American plates belonging to the college, Keuffel & Esser's Alphabet.

ENGLISH AND POLITICAL ECONOMY.

PROFESSOR THACH.

PROFESSOR WIATT.

ASSISTANT SCROGGS.

ASSISTANT LETCHER.

OBJECTS AND METHODS.

In this department the students pursue a systematic course in the English language and literature.

Language is the avenue of approach to all knowledge; the interpretation of words is the fundamental process in education of whatsoever kind. A full course in English is, therefore, considered especially important in the technical courses of study that do not include the ancient classics. Accordingly, the course in English is continued throughout the four years of the college curriculum, three hours a week, and is made obligatory upon all students, with the exception of those pursuing the first two years of the course in Latin. In this extended drill in the grammar and literature of the English language, the endeavor is made to afford a training somewhat equivalent to the ordinary course in the classical languages.

In view of the ill preparation in languages, especially in their mother tongue, exhibited by many of the candidates for admission to the freshman class, it is deemed advisable, for the sake of honest work, to devote a portion of the first year to grounding such students in the principles of grammar.

Especial attention is given to the study of the writings themselves of leading English authors, since direct contact with literature is considered more profitable than information merely *about* literature.

All students before classed as regular in any course leading to a degree must conform to all the requirements in English for admission as set forth on page 41.

For requirements as to thesis and as to proficiency in English for certificates and degrees see pages 49, 50, and 109.

Declamation and themes (or orations) are required of *all regular* students. For details see below.

COURSES OF STUDY.

Freshman Class—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied; study of American authors; Irving, Hawthorne, Holmes, Poe, Bryant, Longfellow.

Swinton's English Grammar, Lockwood's Rhetoric, Kellogg & Reed's English Language.

Sophomore Class—Three hours a week; study of style, analysis of selections of prose and poetry; frequent essays on historic and literary themes.

G. R. Carpenter's Rhetoric, Genung's Rhetorical Analysis, Syle's From Milton to Tennyson.

Junior Class—Three hours a week; lectures on the history of English literature, critical study of English classics, essays.

Pancoast's History of English Literature; Pancoast's Standard English Poems, Macaulay, Carlyle, DeQuincey, etc.

Senior Class—Two hours a week, first term. Principles of Criticism, Shakespeare's Julius Cæsar, Hamlet, etc., Dowden's Shakespeare, etc.

THEMES AND ORATIONS.

Theory without practice is as fruitless in the study of English as in any other department of study. Practical work is indispensable to the successful teaching of English.

Besides numerous brief papers illustrative of the subject matter of the text-books, set themes or orations are *required of all students*: For the freshman class, *ten* themes a year; *ten* for the sophomore; for the senior and junior classes, *three* orations each.

DECLAMATION.

The old practice of committing pieces to memory for "speaking" is cultivated as a means, both of training in the art of thinking on the feet, and of storing the mind with the diction of finished specimens of English style.

The sophomore class is heard weekly throughout the year in sections of ten, once for an hour and a half in rehearsal, afterwards in the study-hall before the body of students.

The senior and junior classes also deliver their orations in public.

PHILOSOPHY AND POLITICAL ECONOMY.

The senior class pursues the study of intellectual science, twice a week, through the year; and political economy twice a week, during the last two terms. The instruction in this department is by lectures in combination with text-books.

Intellectual Science—Psychology defined. Value in relation to moral culture, education and Natural Sciences. The relation of the soul to matter. The arguments of the Materialist. Counter arguments. The Faculties of the Soul. The nature of Consciousness. Sense Perception. Fancy. Imagination. Nature of Conceptions. Language. Judgment. Reasoning. Deduction. Induction, etc. *Porter's Intellectual Science.*

Political Economy—Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades-union; tariff; education, etc. *Lectures by Professor. Ely's Outlines of Economics.*

A Post-graduate course has also been established in English. The following courses have been given:

(1) *Shakespeare*—Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV., Part I., Richard III., King John.

(2) *Dryden—Poetical Works* (Christie); *Essay on Dramatic Poesy* (Thomas Arnold); *Essay on Satire, etc.*, (Yonge); Saintsbury's *Life of Dryden.*

Pope—Poetical Works (Ward); *Satires* (Pattison); Stephen's *Life of Pope*, Gosse's *From Shakespeare to Pope* and *18th Century Literature.*

(3) *English Literature of the Eighteenth Century*: Addison Pope, Gray, Goldsmith, Burns, Cowper, Burke.

(4) *American Literature*: Longfellow, Lowell, Poe.

(5) *The Rise and Development of the English Essay*: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(6) *Milton—Poetical Works* (Masson); Life, Patisson, Brooke.



CHEMICAL LABORATORY (INTERIOR).

CHEMISTRY.

PROFESSOR ROSS.

ASSISTANT PROFESSOR HARE.

INSTRUCTOR PHELPS.

Instruction in this department embraces—

1. A course of lectures in general chemistry.
2. A course of lectures in industrial and engineering chemistry.
3. A course of lectures in organic chemistry.
4. A course of lectures in metallurgy.
5. A course of lectures in agricultural chemistry.
6. Systematic laboratory work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in general chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cooke's Chemical Philosophy, Chemical Journals.

2. Lectures in industrial chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams.

A course of lectures (two hours per week) on engineering chemistry is given during the last half of the senior year, especial attention being given to the study of the construction and equipment of chemical plants devoted to the manufacture of the more important chemical products. The study of textile chemistry will also be included in this series of lectures.

Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operations of the leading industries.

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology; Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watts's Dictionary, Richardson and Watts's Chemical Technology, Sadtler's Industrial Organic Chemistry.

3. Course in organic chemistry: Instruction in this subject embraces lectures and recitations (two hours per week) throughout the junior year, upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the methods of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations.

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

4. Course in metallurgy: This consists of lectures and recitations (two per week, during the first half of the senior year) upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved.

5. Course in agricultural chemistry: This consists of lectures on chemistry in its application to agriculture (two per week, during second and third terms), and includes a thorough discussion of the origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist.

REFERENCE BOOKS.

Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson's and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

6. The course of systematic laboratory work: This course of practical work in the laboratory is carried on in connection with each course of lectures. In the jun-

ior year the work embraces the practical operations of chemical synthesis and analysis and includes the preparation of the non-metallic elements and their most important compounds, in addition to a systematic study of the metals and their compounds, their separation and identification. In the senior year students pursue work in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc., the courses of work being varied somewhat to suit the individual object of the student.

In the course in Pharmacy, instruction in Toxicology and Toxical Analysis is given during the last term of the senior year.

All students during the sophomore year are required to take two hours per week of practical laboratory work, instruction being given in the simplest methods of chemical manipulation.

The laboratories, which are open from 9 A. M. to 5 P. M., during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common re-agents and apparatus used in qualitative or quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

In addition to the laboratory work above described it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

TEXT-BOOKS.

In qualitative analysis—Jones, Sellers, Fresenius, Plattner.

In quantitative analysis—Fresenius, Cairns, Sutton, Rose, Blair's Analysis of Iron and Steel, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying, Stillman's Engineering Chemistry, Lord's Metallurgical Analysis.

In agricultural chemical analysis—Official methods of the Association of Agricultural Chemists, Wiley's Principles and Practice of Agricultural Analysis.

CHEMICAL LABORATORY.

[For description of the building see page 16.]

The chemical apparatus recently purchased for the laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, eight short-arm balances of latest pattern, Bunsen spectroscope, Abbe refractometer and other instruments for delicate and accurate work.

PHYSICS.

PROFESSOR SOUTHALL.

The complete course of Physics extends over four years, and is designed to give, as far as possible, an adequate and correct idea of the methods of Physical Science, and to lay the foundation for subsequent more advanced work if (as must often be the case, especially in an institution such as this) the student desires to pursue the subject further or intends to engage in any of the great engineering professions of which Physics is so important a basis. The lectures are illustrated by experiments; the students are required to work numerous problems and exercises; recitations are held each week.

FRESHMAN COURSE.

This course is very elementary, and continues only during the first and second terms. The object in view is to make the student familiar with the fundamental principles of Physics. The class meets three times a week. (The text-book will be announced later.)

SOPHOMORE COURSE.

This is a laboratory course, and deemed especially important for students of engineering, and of great advantage to such as intend to pursue the subsequent higher work in this department. The laboratory exercises are carefully selected, being designed to illustrate the fundamental methods and principles of Physics, and, although the work is necessarily more or less elementary, at the same time such accuracy and precision as the conditions admit of are insisted upon, so that the student is expected to acquire a fairly correct idea of modern experimental investigation. The exercises consist of the fundamental measurements of Length, Mass, Density, moduluses of Elasticity, pendulum experiments, etc., together with a few more advanced experiments in connection with the simpler properties of Liquids and Gases, and the general phenomena of Heat and Sound. The student is required to write a careful report of each experiment, entering the results of observation in tabular form, and plotting a curve wherever practicable; also describing the object, apparatus, and method, and noting sources of errors, etc. Great stress is laid upon this requirement, and reports are not accepted unless they indicate that the student has done his best in every way. Four hours per week, throughout entire year. (Text-book will be announced later.)

JUNIOR COURSE.

Lectures and recitations three hours a week throughout entire session. This is a more advanced course in general physics required of all candidates for a degree. The only preparation needed is a good working knowledge of mathematics through plane trigonometry. The course includes a series of illustrated lectures on the principles of Dynamics, as applied to Solids, Liquids, and Gases, Sound, and Heat, in the order named. Written exercises are required each week. (Text-book to be announced later.)

SENIOR COURSE.

Lectures and recitations two hours a week throughout the entire session. This course, although more advanced than the Junior course, and occasionally employing the higher Mathematics, is a continuation of the work of the previous year. It might be called a course in Elementary Mathematical Physics, and the subjects, varying from year to year, that are treated in the lectures are such branches of Physics as Kinematics and Dynamics, Thermodynamics, Electricity, and Magnetism, Geometrical and Physical Optics, etc. The student is encouraged to solve difficulties for himself, and to read the standard treatises and original memoirs on the various topics that come under discussion.

The last term of the session will generally be devoted to a brief course of lectures in *Descriptive Astronomy*.

The text-books in this class vary with the changing subjects, and will be announced by the professor each year.

GRADUATE COURSE.

This course will be designed to meet the needs of the students who take it. It will include both theoretical and experimental work in more advanced Mathematical Physics, or in Analytical Mechanics.

HISTORY AND LATIN.

PROFESSOR PETRIE.

ASSISTANT BOYD.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements and the reciprocal influenees of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library.

The following courses are given:

Freshman Class—History of the United States, Alabama, and England.

Text-books: Hart's "Formation of the Union," Wilson's "Division and Reunion," Brown's "History of Alabama," Montgomery's "History of England."

Sophomore Class—Political and Social History of Europe, Ancient, Mediæval and Modern. The work is conducted partly by lectures, partly by text-book. Every week problems will be assigned for research.

Text-book: Myers's General History.

HISTORICAL LABORATORY.

In the junior and senior classes opportunity for special work in United States history is given to those stu-

dents of the General Course who elect it as laboratory work, and to any others who are properly qualified. The chief object kept in view is training in historical research and in the formation of independent, but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers and letters illustrative of Southern, and especially of Alabama, history.

The method of work is as follows: Informal lectures are given on important and suggestive points. After each lecture topics connected with it are assigned to the students with an outline of the points to be investigated. They report their results to the class and a discussion follows. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion.

The following courses in laboratory work will be offered during the session of 1902-03:

Junior Class—The motive for American colonization; colonial governments; causes of the Revolution; Declaration of Independence; treaty of peace; Confederation; Ordinance of 1787; Constitution.

Text-books: Frothingham's "Rise of the Republic," Lecky's "American Revolution," Fiske's "Critical Period."

Senior Class—The rise of parties; War of 1812; Monroe Doctrine; Missouri Compromise; Nullification; Annexation of Texas; Compromise of 1850; Kansas Struggle; Dred Scott Decision; Secession.

Text-books: Moore's "American Congress," Burgess's "Middle Period."

GRADUATE STUDENTS.

Graduate students are expected to take part in the junior and senior discussions and in addition will meet with the professor for conference in regard to their work. Those who take history as their major subject are expected to devote a large part of their time to original research upon some topic on which they can consult the original sources of information. They are also required to pursue a prescribed course of reading as indicated below.

TEXT-BOOKS.

Rhodes's "History of the United States from the Compromise of 1850," Vols. 1 and 2; Stephens's "Constitutional View of the War Between the States"; Lives of Calhoun, Clay and Jackson; special reading in connection with the research.

PRIZES.

The Eufaula Chapter of the Daughters of the American Revolution have offered a gold medal for the best original historical research done during the session of 1901-02 by any young woman matriculated in college.

The Colonial Dames in Alabama have donated fifty dollars toward the expenses during the session of 1902-03 of the young man matriculated in college who submits the best research on a specified colonial topic.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization, both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation.

English passages based on the author read or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

For the benefit of students who do not study the Latin language a series of popular lectures will be given upon the great Latin writers. Especial emphasis is laid on proficiency in writing Latin exercises and in translating Latin prose at sight.

TEXT-BOOKS.

Freshman Class—Allen & Greenough's Grammar, Exercises, Nepos, Sallust or equivalent.

Sophomore Class—Cicero, Allen & Greenough's Grammar, Bennett's Latin Composition.

Junior Class.—Virgil, Livy, Allen and Greenough's Grammar, Exercises, Guerber's Mythology, Botsford's "History of Rome."

Senior Class—Horace, Tacitus, Wilkins's Latin Literature, Exercises, Preston and Dodge's "Private Life of the Romans."

MODERN LANGUAGES.

PROFESSOR WIATT.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

The following regular courses are given in French and German:

French—First Year: Three recitations a week. During this year the principal object is to acquire a knowl-

edge of the elements of grammar and a correct pronunciation, together with a facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year almost the same line of work is pursued as that begun the previous year. More difficult and varied French is read, and instruction is given upon the laws of grammar, the construction of the language, and the history of the literature. Special attention is given to sight translation.

German—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

The students in this department will meet the professor twice a week, from 4 to 5 p. m. during the *first term*, and the *third term*, for exercises in conversation in French and German.

TEXT-BOOKS.

FRENCH—*First Year*: Edgren's Grammar and Locard's Supplementary Exercises. Super's Reader.

Second Year: Feuillet's Le Roman d'un Jeune Homme Pauvre, Racine's Esther, Corneille's Le Menteur, Molière's Le Bourgeois Gentilhomme, selected plays, Whitney's Grammar, original exercises.

GERMAN—*First Year*: Joynes-Meissner's Grammar and Reader.

Second Year: Der Bibliothekar, Wilhelm Tell, Whitney's Grammar and Exercises, selected plays, original exercises.

GRADUATE COURSE.

This course is offered for the benefit of those students who wish to pursue the study of these subjects beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.



ELECTRICAL BUILDING.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.

ASSISTANT SLOAN.

JUNIOR YEAR.

First Term: Four hours per week are devoted to the study of the principles of electricity and magnetism, with special reference to their industrial applications. The subject of electrical measurements is also treated in detail.

Second Term: Incandescent lighting, four hours per week.

Third Term: Arc lighting and wiring, four hours per week.

TEXT-BOOKS.

S. P. Thompson's Electricity; Crocker's Electric Lighting, and Cushing's Standard Wiring.

Instruction is given by lectures and recitations.

LABORATORY WORK.

Four hours per week are devoted to work in the laboratory. This includes management of batteries, electrical measurements, adjustments and testing of arc lamps, and a considerable amount of wiring and some electrical construction.

SENIOR YEAR.

First Term: Dynamo electric machinery, five hours per week.

Second Term: Alternating currents and alternating current machinery.

Third Term: Polyphase machinery and power transmission, five hours per week.

TEXT-BOOKS.

Dynamo Electric Machinery, Sheldon. Alternating Currents, Franklin and Williamson, Standard Polyphase Apparatus, Oudin.

LABORATORY WORK.

Six hours per week during the entire senior year are devoted to practical work in the dynamo laboratory. The work includes the study and testing of various types of dynamos and motors, the determination of various constants, dynamo and motor efficiencies, transformer testing, and the general management and installation of electrical machinery.

ELECTRICAL DESIGNING.

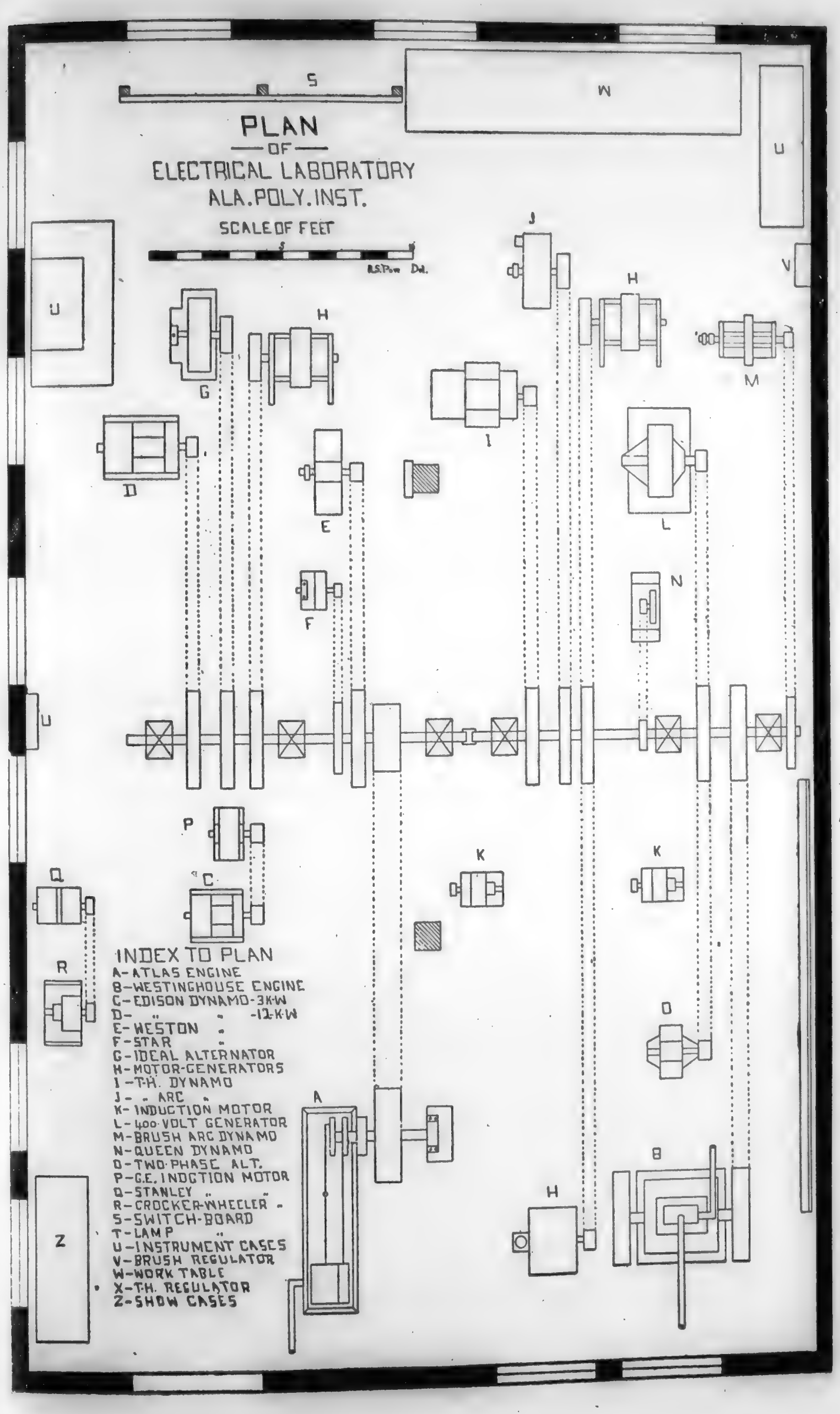
During the first term each senior student is required to design and prepare the necessary drawings for the construction of a direct current dynamo or motor, and during the third term the design of an alternator is completed.

Encouragement is offered to advanced students for conducting original investigations, and opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students in connection with their experimental work.

Post Graduate Course. To graduate students more advanced courses of instruction in polyphase machinery and power transmission are offered, the courses being varied from year to year to suit the needs of those taking them.

EQUIPMENT.

The laboratory is well supplied with batteries, storage and primary, telephones, plating apparatus and similar minor apparatus. Among the instruments of precision may be noted Kelvin ampere balances, graded current and potential galvanometers, alternating and direct current ammeters and voltmeters of various ranges, from Weston, Queen, Jewell, Hartman & Braun, Despretz, Fein, General Electric Company and other domestic and foreign makers. There are also direct reading and recording watt meters, dynamometers reading from .0001 ampere to 100 amperes, a number of resistance boxes and bridges, condensers, keys, galvanometers of various types, magnetic testing apparatus, portable and fixed, pho-


PLAN
OF
ELECTRICAL LABORATORY
ALA. POLY. INST.
SCALE OF FEET
INDEX TO PLAN
A-ATLAS ENGINE
B-WESTINGHOUSE ENGINE
C-EDISON DYNAMO-3K-W
D- " - -12-K-W
E-WESTON "
F-STAR "
G-IDEAL ALTERNATOR
H-MOTOR-GENERATORS
I-T-H. DYNAMO
J- " ARC "
K-INDUCTION MOTOR
L-400-VOLT GENERATOR
M-BRUSH ARC DYNAMO
N-QUEEN DYNAMO
O-TWO-PHASE ALT.
P-G.E. INDCTION MOTOR
Q-STANLEY " "
R-CROCKER-WHEELER "
S-SWITCH-BOARD
T-LAMP "
U-INSTRUMENT CASES
V-BRUSH REGULATOR
W-WORK TABLE
X-T-H. REGULATOR
Z-SHOW CASES

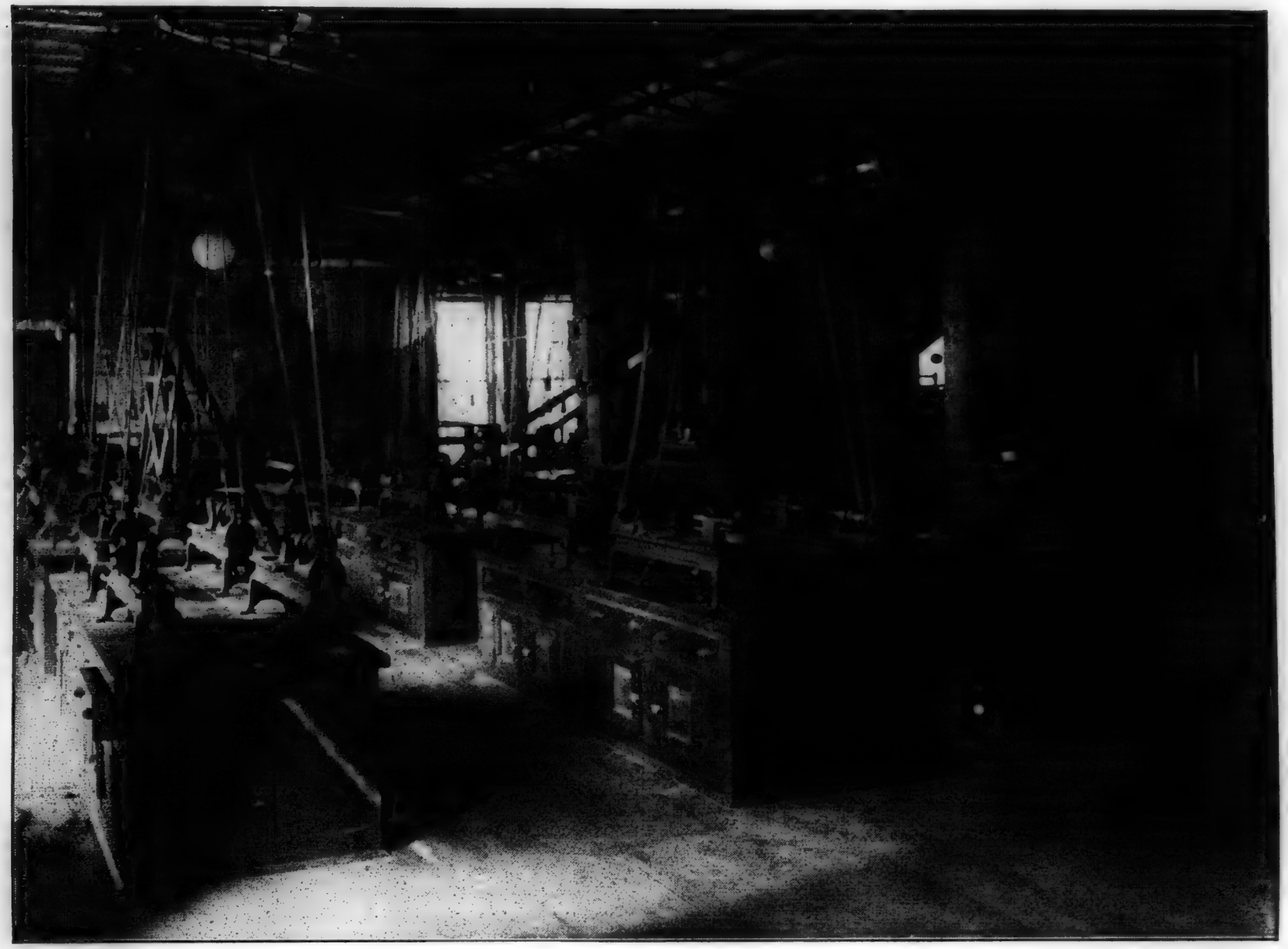
tometers, high potential testing apparatus, portable testing set, cradle dynamometer, a special instrument for comparing inductances, self and mutual, and capacities.

This department, being provided with Lord Kelvin's standard electrical instruments for exact measurements, will calibrate free of expense, any ammeter or voltmeter that may be sent to the college.

In the dynamo room the following are installed: One Weston 150 volt, 20 ampere dynamo, with rheostat; one Brush 6 arc light dynamo, with regulator and six lamps; one Ideal 5 kilo-watt three phase alternator; one Thompson-Houston 9 arc light dynamo with lamps; one Edison compound wound 12 kilo-watt generator; a Thompson-Houston 110 volt, 75 ampere generator; two street car motors used as either direct or alternating current generators or motors; two polyphase induction motors; one General Electric 5 horse-power induction motor, mounted on cradle dynamometer; General Electric 20 horse-power motor; and Stanley induction motor with condensers; one Fort Wayne 1 horse-power alternating current motor; Edison 3½ kilo-watt generator; a Crocker-Wheeler 1 horse-power motor and rheostat and one bi-phase alternator, and 500 volt generator, made by special students, furnish current to laboratory and light up the different buildings. A lamp board with a capacity of 210 lamps has been installed and is used for testing purposes.

The dynamos occupy a separate brick building 50x32 feet, and are operated by a 60 horse-power Harrisburg Standard engine, and a 25 horse-power Atlas engine.

An electric motor, made by students, supplied with current from a generator at a distance of 3,000 feet, operates a gin, gin press, ensilage cutter and feed cutter at the experiment station farm. This motor not only subserves a useful purpose in the operation of these machines, but is an excellent illustration of the electric transmission of power.



WOOD ROOM.

MECHANICAL ENGINEERING AND MECHANIC ARTS.

PROFESSOR WILMORE.

ASSOCIATE PROFESSOR CRENSHAW.

ASSISTANT PROFESSOR TRAMMELL.

ASSISTANT PROFESSOR FULLAN.

INSTRUCTOR HILL.

ASSISTANT WERNER.

The course in manual training covers three years, as follows: First year, wood-working—carpentry and turning; second year, pattern making and foundry and forge work—molding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the two lower classes. For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

The power for running the apparatus in this department is derived from a 25 horse-power Harris-Corliss automatic engine. A steam pump and a heater for the feed-water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected, and a 100 horse-power Heine boiler installed.

The equipment for the wood-working shops comprises the following: 30 wood-working benches, each with complete set of carpenter's tools; 24 turning lathes 10-inch swing each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 jointer; 1 pattern-maker's lathe 16-inch swing; 1 36-inch grindstone. The tool room is supplied with a variety of extra hand tools for special work and in addition to the regular carpenters' tools in the benches each student is supplied with a set of chisels

and plane irons with a locker to keep them in and is held responsible for their care and condition.

The equipment for the foundry consists of molding benches for 18 students, each supplied with a complete set of molder's tools; a 23-inch Colliau cupola, with all modern improvements, capable of melting 2,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small molding fiasks, a foundry crane, special tools, etc.

The forge shop equipment consists of 24 down draft forges of new pattern each with a set of smith's tools, anvils, etc. The blast for all the forges is supplied with a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a 60-inch underground exhaust blower draws the smoke from the fires into the smoke flues and forces it out through the chimney.

The machine department occupies a brick building 30x100 feet and is equipped with eight 14-inch screw cutting engine lathes with six-foot bed; 2 engine lathes, 16-inch swing (one with taper attachment); 1 engine lathe, 18-inch swing, with compound rest and taper attachment; 1 speed-lathe, 10-inch swing; 1 20-inch drill press (power feed); 1 10-inch sensitive drill; 1 15-inch shaper; 1 22-inch x22-inchx5 foot planer; 1 26-inchx26-inchx6 foot iron planer; 1 universal milling machine; 1 corundum tool grinder (14-inch wheel); 1 bench grinder; 1 post drill press; 1 Brown and Sharpe universal grinding machine; 1 universal cutter and reamer grinder; 1 power hack saw. A part of the room is set apart for vise work, chipping and filing; and benches for twelve students are provided, each with vise and set of files, chisels, hammers, etc. In the tool room is to be found a good supply of machinists' tools for general shop use, such as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, with machine for grinding twist drills.

The nature of the work in each department is as follows:

FIRST YEAR.

I. A course in carpentry or hand work covering the first two terms. The lessons include instruction in the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, different kinds of joints, timber splices,

cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work, examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the third term. The lessons comprise nature and use of lathe and tools, plain straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plate and chuck work, hollow and spherical turning.

SECOND YEAR.

I. Course in forge work in iron and steel, occupying the first term. The lessons are arranged so that the students in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

II. A course in pattern-making covering the second term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general molding.

III. A course in molding and casting in iron and brass occupying the third term. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks; core work is also given and some three part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola.

In connection with the second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

THIRD YEAR.

I. Course of chipping and filing, covering the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved surfaces, key-seating, etc., filing and finishing to line (straight and curved), surface filing and finishing, fitting,

slotting, dovetail work, sawing, pin and screw filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron; steel and brass; turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press—reaming, boring, screw-cutting in lathe and with taps and dies, planing, slotting etc., with planer and shaper, milling various forms with the milling machine, including exercise in making taps, reamers, etc., fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals; such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

All of the work is done from blue prints and blackboard sketches. In the construction work the student is given a blue print and the material for a certain part. He is then encouraged to study the work and plan the best method of doing it.

MECHANICAL ENGINEERING.

JUNIOR YEAR.

Elementary Mechanics.—Three hours a week for the first term are devoted to this subject. The fundamental laws underlying all mechanical science and the mechanics of liquids, gases and vapors are studied.

Kinematics.—Three recitations per week during the second and third terms are devoted to this subject.

Under this head machines are analyzed and their elementary combinations of mechanism studied. The communication of motion by gear-wheels, belts, cams, screws and link-work, the different ways of obtaining definite velocity ratios and definite changes of velocity, parallel motions and quick return motions as well as the designing of trains of mechanism for various purposes, together with the theoretical forms of teeth for gear wheels to transmit the motion through these trains, are investigated under this subject.

Rose

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ARTS,

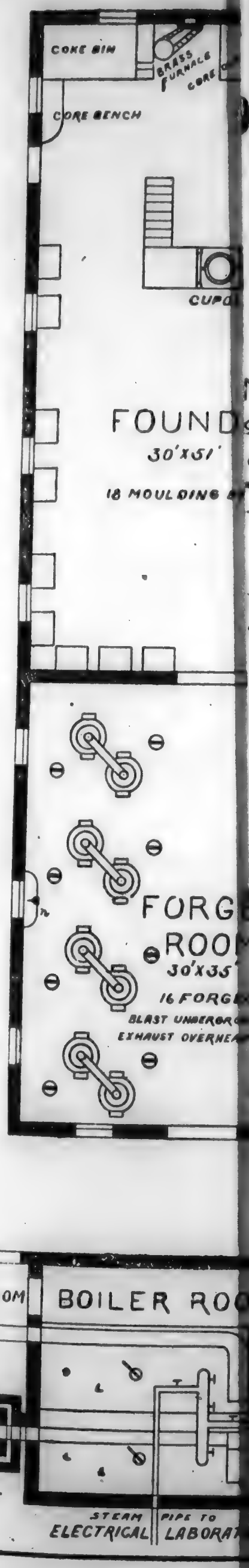
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18 MOULDING

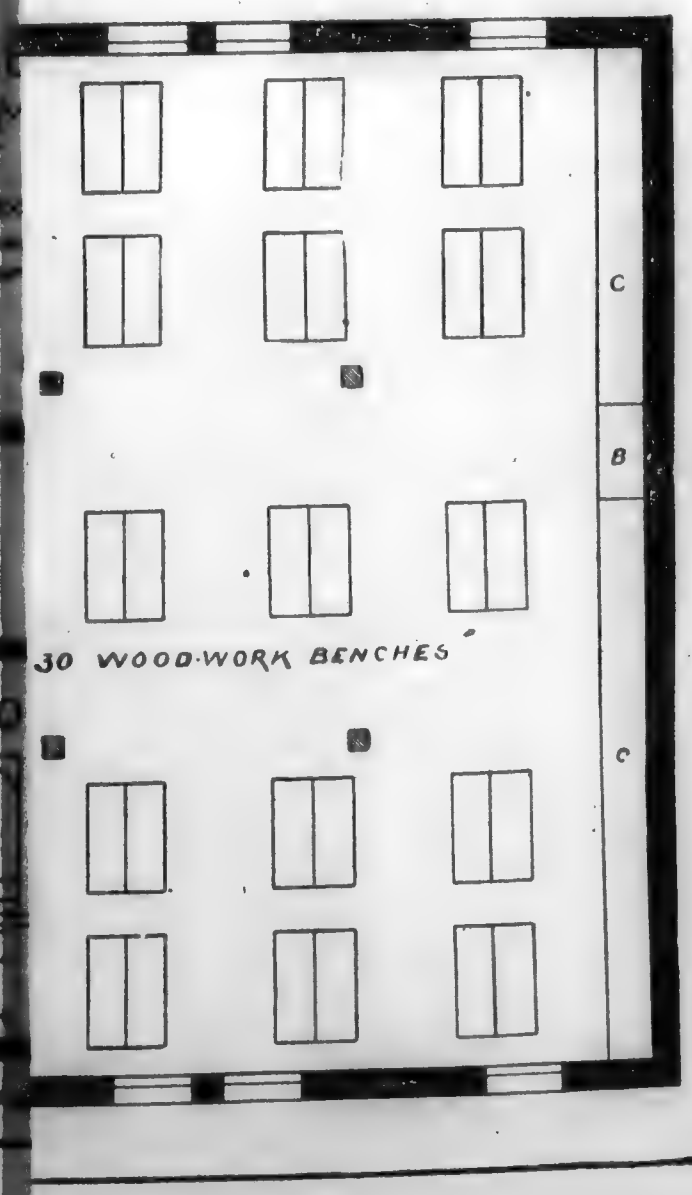


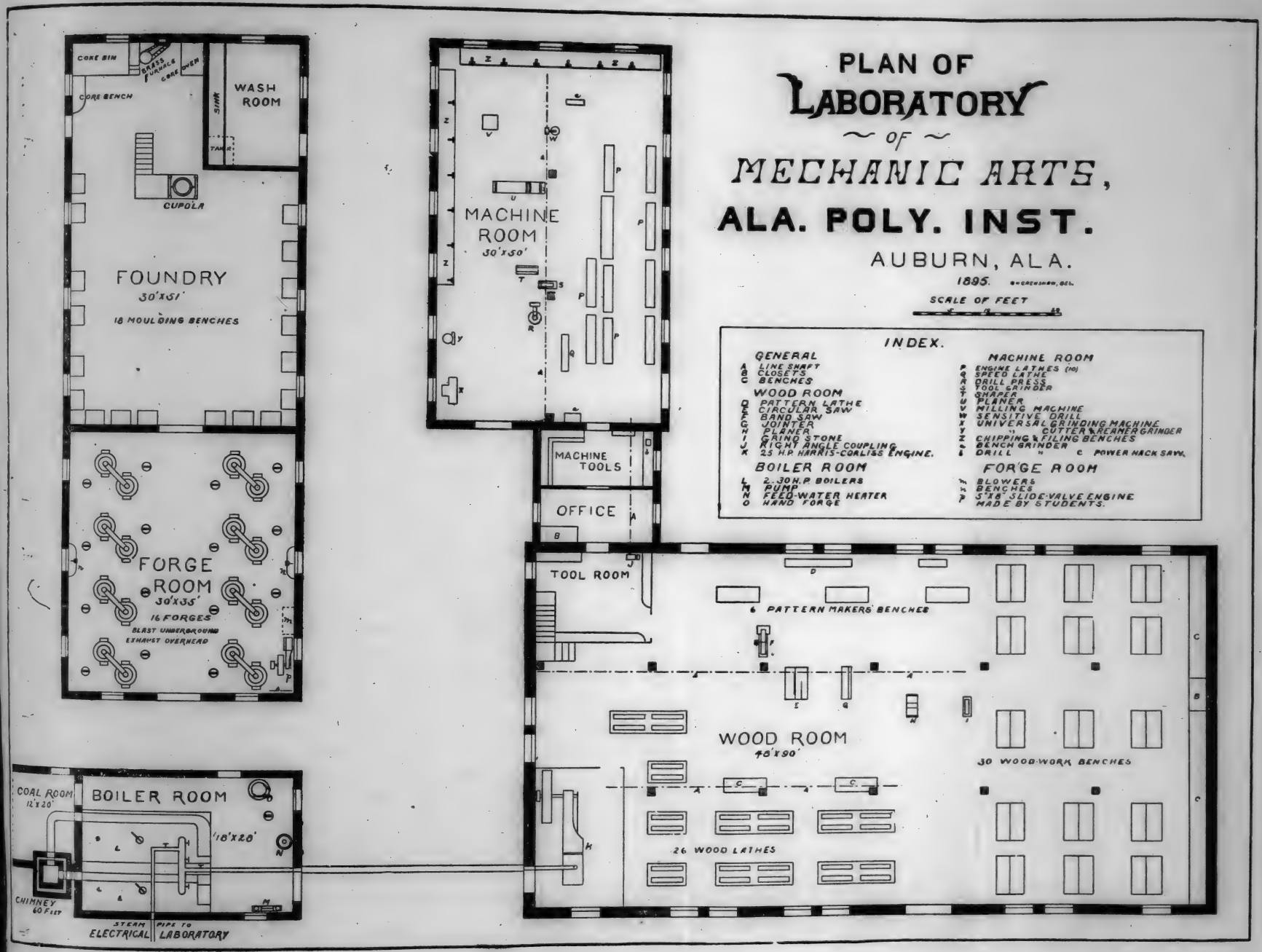
MACHINE ROOM

ENGINE LATHES (10)
SPEED LATHE
DRILL PRESS
TOOL GRINDER
SHAPER
PLANER
MILLING MACHINE
SENSITIVE DRILL
UNIVERSAL GRINDING MACHINE
" CUTTER & REAMER GRINDER
CHIPPING & FILING BENCHES
BENCH GRINDER
DRILL " & POWER HACK SAW.

FORGE ROOM

BLOWERS
BENCHES
5"X8" SLIDE-VALVE ENGINE
MADE BY STUDENTS.




PLAN OF
LABORATORY
OF
MECHANIC ARTS,
ALA. POLY. INST.
AUBURN, ALA.
1895.
SCALE OF FEET
INDEX.
GENERAL
A LINE SHAFT
B CLOSETS
C BENCHES
WOOD ROOM
D PATTERN LATHE
E CIRCULAR SAW
F BAND SAW
G JOINTER
H PLANER
I GRIND STONE
J RIGHT ANGLE COUPLING
K 25 H.P. HARRIS-CORLISS ENGINE.
BOILER ROOM
L 2-30 H.P. BOILERS
M PUMP
N FEED-WATER HEATER
O HAND FORGE
MACHINE ROOM
P ENGINE LATHES (10)
Q SPEED LATHE
R DRILL PRESS
S TOOL GRINDER
T SHAPER
U PLANER
V MILLING MACHINE
W SENSITIVE DRILL
X UNIVERSAL GRINDING MACHINE
Y " CUTTER & REAMER GRINDER
Z CHIPPING & FILING BENCHES
a BENCH GRINDER
b DRILL " c POWER HACK SAW.
FORGE ROOM
m BLOWERS
n BENCHES
p 5"x8" SLIDE-VALVE ENGINE MADE BY STUDENTS.
CORE BIN
CRASS FURNACE
CORE OVEN
CORE BENCH
SINK
WASH ROOM
TANK
CUPOLA
FOUNDRY
30'x51'
18 MOULDING BENCHES
MACHINE ROOM
30'x50'
MACHINE TOOLS
OFFICE
FORGE ROOM
30'x35'
16 FORGES
BLAST UNDERGROUND
EXHAUST OVERHEAD
TOOL ROOM
6 PATTERN MAKERS BENCHES
WOOD ROOM
40'x90'
30 WOOD-WORK BENCHES
26 WOOD LATHES
COAL ROOM
12'x20'
BOILER ROOM
18'x20'
CHIMNEY
60 FEET
STEAM PIPE TO ELECTRICAL LABORATORY

Mechanical Drawing.—Fours hours a week during the year are devoted to drawing. During the first part of the year instruction is given in the conventional methods of representing standard materials, and in the design of fastenings and machine parts. Later on scale drawings of simple machines are made from dimensioned sketches which each student makes for himself from the actual machine. Free hand lettering, tracing, and blueprinting receive attention, and all the instruction is intended to familiarize the student with modern drawing office methods.

TEXT-BOOKS.

Wood's Elementary Mechanics, Barr's Kinematics of Machinery.

SENIOR YEAR.

Mechanical Engineering of Power Plants.—The first term, five hours per week, is given to the study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages and disadvantages of each discussed. Extensive files of manufacturers' catalogues are kept and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work.

Steam Engine.—The second term five hours per week will be given to the study of the theory and efficiency of the steam engine, with discussions of the effects of condensation in cylinder, action of fly wheels, effect of jacketing, etc. Simple and compound engines, various valves

and cut-off motions, and the principal types of modern engines are studied. Special attention is given to the steam engine indicator.

Applied Mechanics.—The third term, four hours per week is given to work in this subject. Applications of the mechanical principles previously learned, are made to the solution of practical problems. Considerable attention is given to graphical methods, these being used in preference to the analytical when possible.

One hour a week for the third term is given to a series of lectures on mechanical refrigeration and gas and gasoline engines.

Machine Design.—The subject of machine design is made a continuation of the junior course and runs throughout the year, two hours a week. The general plan of the work follows the text-book adopted, but variations are made and additional exercises given when found desirable. The strength and proportion of joints, fastenings and machine details are studied. Problems are given, the dimensions worked out and the drawings made. It is the purpose of the course, as far as time will permit, to prepare students for practical drawing-room work.

Laboratory Work.—The students are not only taught how to calibrate and use the different instruments, but they are brought in contact with engineering appliances under practical working conditions.

Thoroughness of work is sought rather than the performance of a large number of experiments.

The following course has been arranged:

Calibration of steam gauge; calibration of indicator spring; calibration of thermometer; calibration of scales and balances; calorimeter tests with barrel, separating and throttling calorimeters; boiler test with determination of the quality of steam and analysis of flue gas; efficiency test of engine with brake and indicator power measurement; test of hot air pumping engine; efficiency and duty

of a steam pump; tensional, compressional and transverse tests of cast iron, wrought iron, steel and wood, in which are observed the limit of elasticity, the ultimate breaking strength and the modulus of elasticity.

This class usually makes a test of some electric plant or mill some time in the last term.

The apparatus for carrying on this work consists of a 100-horse power Heine boiler, a 45-horse power Imperial cross compound engine, especially arranged for experimental work, supplied with Wheeler surface condenser and Worthington air pump and circulating pump; of a 25-horse power Harris-Corliss engine, a 35-horse power Westinghouse engine, a 25-horse power Atlas engine, two 9-horse power engines constructed by students in the shops; a Duplex Deane steam pump, an Ericsson hot air engine, a Westinghouse air pump, four steam engine indicators, a separating calorimeter, pyrometers, scales, a standard steam gauge with apparatus for testing steam gauges, a Crosby dead weight tester for correcting the standard gauge, a 35,000-pound testing machine, and Henning micrometer extensometer, a Carpenter calorimeter, with auxiliary apparatus for determining the heating value of different fuels, a draft gauge, and a Henning pocket recorder.

TEXT-BOOKS.

Hutton's Mechanical Engineering of Power Plants, Holmes's Steam Engine, Reid's Machine Design.

REFERENCE BOOKS.

The Library contains a number of standard works on the various subjects studied, and the students are referred to them constantly for more extended treatment of many points that come up in class.

POST-GRADUATE COURSE.

Considerable latitude is allowed in the selection of post-graduate work, and the course is arranged each year to suit the requirements of the class. One of the following lines of work is recommended: Hydraulics, Thermodynamics, or Power Plant Engineering. The course selected is accompanied by suitable laboratory work.

TEXT-BOOKS.

Flather's Dynamometers and Measurement of Power, Peabody's Thermodynamics of the Steam Engine, Merriman's Hydraulics.

AGRICULTURE.

PROFESSOR DUGGAR.

Instruction in agriculture is given by means of lectures, text-books, bulletins of the agricultural experiment stations, and practical work in field, barn, and dairy.

The study of agriculture begins with the freshman class in the third term, and extends through three terms of the sophomore year and two terms of the junior year. The time devoted to this study in the lecture room is two hours per week with each class.

The subjects studied by the freshman class are the breeds of horses, cattle, sheep and hogs—their characteristics, uses, management and adaptability to the South. Practical work in judging live stock occupies one afternoon per week during the second term. Five breeds of cattle, Angus, Red Polled, Shorthorn, Jersey, and Holstein, are represented in the herd maintained by this department.

The first term of the sophomore year is devoted to dairying. Dairying is taught by practical work in the dairy,—butter making, determination of fat in milk by the Babcock method, etc.,—as well as by instruction in the lecture room.

In the second term of the sophomore year the following subjects are studied: Soils—chemical and physical properties, defects, and means of improvement; the con-

trol of water, including means of conserving moisture in times of drought, terracing, underdrainage, and open and hillside ditches; objects and methods of cultivation; agricultural implements; rotation of crops; and improvement of plants by crossing, selection, and culture.

The third term of the sophomore year is devoted to the staple crops produced in Alabama, to forage plants adapted to the South, and to plants valuable for the renovation of soils. The more important crops are treated with reference to varieties, soil and fertilizer requirements, methods of planting and cultivating, and uses. Practice is given in judging and selecting corn and cotton and in the culture of these and other staple and forage crops.

In the junior year the subjects of feeding animals, principles of breeding animals, and of farm management are studied. Among the topics included under the latter heading are different systems of farming and stock growing, farm equipment and building, silos and silage, care of farm manures, composting, choice and methods of applying commercial fertilizers for different crops and soils, and economical methods of improving exhausted soils.

In every class the student is encouraged to independent thought on agricultural problems rather than to depend on "rules of thumb," so that he may be prepared to adapt his practice in after years to changed conditions of soil, climate, capital, market, etc. The successful farmer must be a thinker rather than a blind follower of inflexible rules.

The effort is made to keep before the student the difference between the widely applicable principles on which every rational system of farming rests and the details that vary with changing conditions. The conditions of soil, climate, etc., prevailing in different parts of Alabama are kept constantly in view.

As far as limited time allows, attention is directed to agricultural literature now accumulating so rapidly in this and in foreign coun-

tries, to the end that in future years the student may know where and how to seek the information that he may need.

The equipment for carrying on the practical work of the department consists of small herds of Red Polled, Shorthorn and Angus cattle; a herd of dairy cows which are used each winter in testing the relative values and profits in different foods; a small herd of Poland China hogs; a few other miscellaneous specimens of live-stock; the fields and large collections of growing plants on the Experiment Station farm; the collection of agricultural implements employed in the work of the farm; and a working dairy, equipped with necessary appliances for making butter and testing dairy products.

POST-GRADUATE COURSE.

Applicants for post-graduate work in agriculture are assigned special research work and aided in the line of investigation deemed best for each individual student.

TEXT AND REFERENCE BOOKS.

Horses, Cattle, Sheep and Swine, by Curtis; The Study of Breeds, by Shaw; Milk and Its Products, by Wing; Dairyman's Manual, by Stewart; Soils and Crops of the Farm, Morrow & Hunt; Forage Plants, by Shaw; The Fertility of the Soil, by Roberts; Corn Culture, by Plumb; The Soil, by King; Physics of Agriculture, by King; Manures and the Principles of Manuring, by Aikman; Drainage for Profit and Health, by Waring; Agriculture in Some of Its Relations with Chemistry, by Storer; The Feeding of Animals, by Jordan; Feeds and Feeding, by Henry; Stock Breeding, by Miles; Hand-book of Experiment Station Work; and selected publications of the various divisions of the U. S. Department of Agriculture, and of the Agricultural Experiment Stations.

BIOLOGY AND HORTICULTURE.

PROFESSOR WILCOX.

1. COMPARATIVE ANATOMY OF THE SPERMATOPHYTES. A thorough study of the structure and activities of the plant cell will be followed by an examination of the typical tissues with special reference to their function. Students are required to become acquainted with the



LABORATORY OF BIOLOGY.

general methods of botanical microtechnique, including the killing, fixing, imbedding, sectioning, staining, mounting and drawing of all the tissues examined.

Lectures and Recitations: Three hours per week during the fall term of the senior year.

Laboratory Work: Two hours per week.

2. PHYTOPHYSIOLOGY.—This is a course of carefully selected experiments, to be performed by each student, supplemented by selected readings, conferences and lectures upon certain subjects. It will be the aim of this course to develop a good, general knowledge of the most important functions of seed-plants, such as absorption, photosynthetic assimilation of carbon-dioxide, transpiration and respiration.

Lectures and Recitations: Three hours per week during the winter term of the senior year.

Laboratory Work: Two hours per week.

As a text, MacDougal's "Practical Text-Book of Plant Physiology" will be employed, while as a laboratory guide Ganong's "A Laboratory Course in Plant Physiology" will be used.

3. PHYTOPATHOLOGY.—The aim of this course is to present a broad and comprehensive view of the subject. A thorough study will be made of the principal sorts of parasitic fungi, but not to the exclusion of diseases produced by unfavorable surroundings and various inorganic factors.

Lectures and Recitations: Three hours per week during the spring term of the senior year.

Laboratory Work: Two hours per week.

4. RESEARCH AND THESIS WORK.—The following lines of work are open to students during this year:

(1) Comparative embryology of spermatophytes.
(2) Ecology and ecological anatomy.
(3) Physiology and morphogenesis.

(4) Advanced plant physiology.
(5) Advanced cytology.

It is expected that seniors will select work in one of these groups and that the results of the research will be presented as a thesis for publication.

HORTICULTURE.

At present special horticultural instruction is confined to the spring term of the junior year in the course of chemistry and agriculture, and to some practical work and "field lectures" to the students of the same course during the sophomore year. Instruction is given by lectures and text-books and by courses of reading, using the green house and orchards and gardens of the experiment station to give practical illustrations of the subjects taught.

It is expected that more extensive courses in horticulture will be provided for next year in connection with a new course in botany and horticulture.

PHYSIOLOGY AND VETERINARY SCIENCE.

PROFESSOR CARY.

ASSISTANT GOGGANS.

PHYSIOLOGY.

The sophomore class studies human anatomy, physiology and hygiene during the entire college year.

It is the aim of the department to give the students practical and real knowledge of the gross anatomy and functions of the various parts of the human body. Due attention is given, also, to the laws of health—the conditions most favorable to a continuous healthy action of the organs of the human body.

Instruction is given by lectures and by text books, supplemented by blackboard drawings, charts, models

of organs, a human skeleton and by dissections of some of the smaller animals (dog, cat, etc.)

Martin's Human Body is used as a text and reference book, and several other works on anatomy, physiology and hygiene may be consulted in the college library.

VETERINARY SCIENCE AND ART.

Students in the agricultural and chemical course of study, during the entire junior and senior years, devote to this work two hours per week in the class room and three hours per week at practical clinics. Instruction in veterinary science and art is given by lectures.

The lectures are arranged with special reference to the students who are interested in horses or other domestic animals; also to those students who contemplate studying human or veterinary medicine. While it is not the aim to give a complete course in veterinary medicine, we attempt to present the general principles of comparative medicine with such special applications as are adapted to the conditions and wants of the students.



Special attention is given to the exterior anatomy of the horse, while comparative anatomy is presented mainly in connection with the study of the diseases of the different apparatus of the horse or other domestic animals.

Lameness in the horse, minor surgery, the actions and uses of the most common medicines, the principles and practice of comparative medicine, and the ways of protecting the health of domestic animals, are considered in as plain and practical a manner as the time allotted to each subject will permit. Post-mortem examination and the dissection of domestic animals are used as object lessons in the study of general pathology and anatomy.

The senior class in pharmacy devotes three hours per week, during the first and second terms, to the study of therapeutics; and three hours per week during the third term to class room and laboratory work in bacteriology.

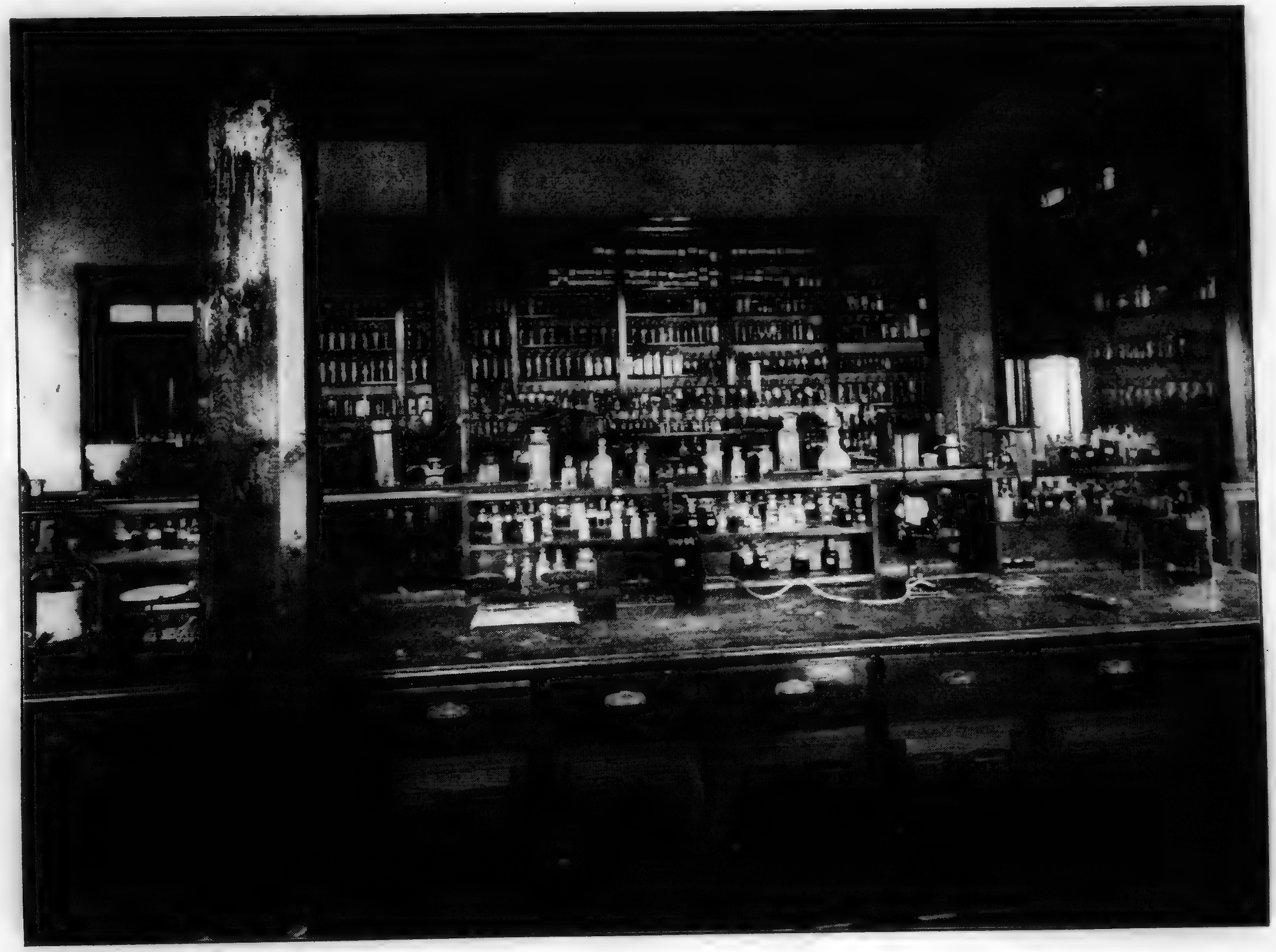
To the post-graduate student this department furnishes work in histology, pathology, bacteriology, meat and milk inspection. This work gives students who contemplate studying medicine excellent preparatory work along that line. Such students may devote one-half their time to work in this department with the approval of the Faculty.

Histology includes methods of injecting small animals, collecting fixing, hardening, embedding, section cutting, mounting, staining, examining under the microscope, drawing and describing the different tissues.

Pathology is studied in text and reference books and morbid histology embraces naked eye and microscopic examinations of diseased tissues in the laboratory. Quite a collection of diseased tissues and animal parasites are found in connection with the laboratory.

The laboratory is well fitted for the study of bacteriology. Bacteriological analysis of water, milk, sputum, pus, diseased tissues, and of soils can be made. All of the practical operations in the preparation of culture, media, sterilizations, inoculations of small animals, straining, microscopical examinations, may be learned. In the laboratory are three Bausch & Lomb and two Winkel microscopes, each of which is supplied with oil immersion objectives, two oculars, Abbe condenser, and iris diaphragm. Sterilizers, autoclaves, incubators, and all the necessary apparatus required in bacteriological work are to be found in the laboratory.

The department of physiology and veterinary science is now lo-



LABORATORY OF PHARMACY.

cated by itself in a building which consists of a two-story portion containing four laboratory rooms on the second floor and a lecture room, museum and office on the lower floor; and a one-story part which contains an operating room.

The building is supplied with water and gas and the laboratory is now equipped for work. The museum contains the skeletons of the horse, the ox, the sheep, and the hog, and a human skeleton. It also contains anatomical models of the various parts and organs of the human body, and models of many parts of the horse, the ox and the other domestic animals. It also contains a collection of pathological and anatomical specimens, and one of animal parasites.

The new veterinary hospital building contains five large box-stalls, four open single stalls, an office and a feed room on the lower floor; the upper floor is used as a storage room for hay, fodder, etc. The hospital is supplied with fresh water.

A new brick and cement dissecting room (16x32) has just been completed. It is supplied with extensive north skylight, and with water and gas.

Every Saturday during the college year the department conducts a free clinic for the benefit of the students in veterinary science and art. Clinical cases have been various and numerous, giving the students opportunity to see and study many diseases and lameness and to become proficient in minor operations.

PHARMACY AND PHARMACOGNOSY.

PROFESSOR MILLER.

ACTING PROFESSOR MASON.

JUNIOR YEAR.

Pharmacy.—Class work, *three hours* a week. The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in pharmacy. Apparatus used in pharmaceutical processes. Discussion of all classes of pharmaceutical preparations.

Laboratory, *nine hours* a week. Preparation of official and non-official galenicals.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. All official vegetable drugs studied with aid of simple and compound microscope.

SENIOR YEAR.

Pharmacy.—Class work,*five hours* a week. Official and non-official pharmaceutical chemicals, inorganic and organic, including the more important newer remedies. The prescription. Incompatibilities. Doses.

Laboratory, *twelve hours* a week. Preparation of official and non-official pharmaceutical chemicals, inorganic and organic. Pharmaceutical testing by pharmacopœial methods. Drug assaying, special attention given to compounding of prescriptions.

Pharmacognosy.—Class work, with laboratory work, *four hours* a week. Study of important non-official vegetable drugs; of drugs of animal origin; of adulterants and worthless drugs. Practical exercises in identification of pharmaceutical preparations and chemicals.

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

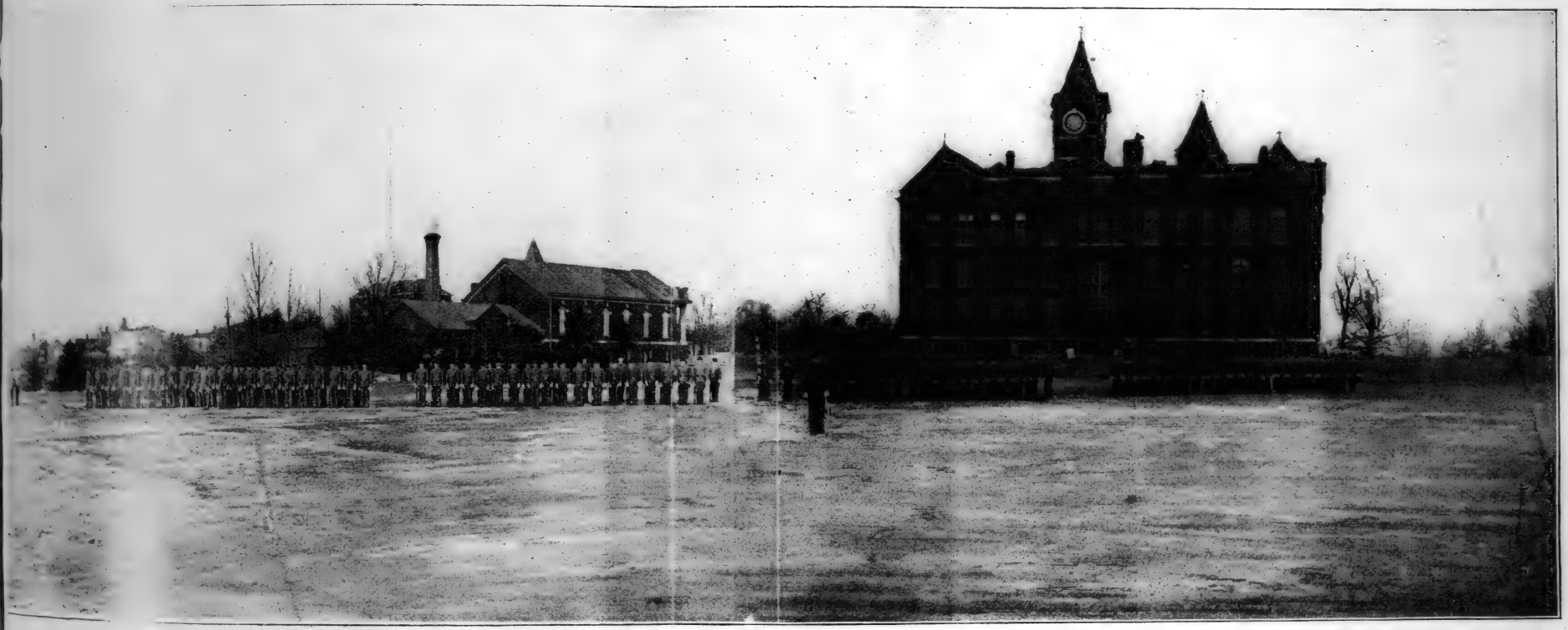
The work in pharmacognosy includes the study of more than 300 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

MILITARY SCIENCE AND TACTICS.

COL. B. S. PATRICK, COMMANDANT.

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company and of the battalion





CORPS OF CADETS.

in close and extended order, also in guard mountings, inspections, dress parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the College is provided with modern cadet rifles and accoutrements. Ammunition for practice firing is used under the direction of an experienced officer. The exercises in target practice begin the first day of the third term.

The following uniform of standard cadet gray cloth has been prescribed for dress: Coat and trousers as worn for fatigue at West Point, with dark blue cadet cap. A neat and serviceable uniform can be obtained here at $15 to $16. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct and scholarship. The commissioned officers will be selected either from the senior or junior classes, and promotion will depend on merit and not wholly on seniority.

A band, composed of cadets, furnishes appropriate music at all reviews and parades, and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the President and Commandant. The resignation of his office by a minor will usually not be considered without first placing all the circumstances of the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Examinations will be conducted by a board of officers, to be composed of the Commandant of Cadets and two commissioned officers, to be designated by him. The proceedings of the board are subject to revision and approval by the President of the College.

Each company is officered by one captain and two first lieutenants, one second lieutenant, and with a proper number of non-commis-

sioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The junior class recites once a week in the United States Infantry Drill Regulations.

The senior class recites once a week in Wagner's Security and Information, and Manual of Guard Duty, U. S. Army.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. army and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

CADET BAND.

The cadet band is a part of the military organization of the College. It takes part in the military and other exercises, and plays when its services are required.

Regular and individual instruction is given free of charge by the band master. A text-book on general musical information is used in connection with the practical instruction.

A gold medal is given each year by the band master to the member of the band who makes the best general record for the year. The presentation is made at Commencement.

MISCELLANEOUS.

GYMNASIUM AND ATHLETIC FIELD.

The gymnasium is situated at the west end of the athletic and drill grounds, and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures.

It is equipped with Spalding's gymnasium apparatus

and is open to all students at stated hours, under the care of an officer.

The athletic field has a quarter-mile cinder track and ample space for football, baseball and general athletics.

DISCIPLINE.

The government of the College is administered by the President and Faculty in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study and punctuality in attendance in recitations and all other duties, are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the College limits, intoxicating liquors.

Students are not permitted to participate in any public entertainment, or game, without previously obtaining the consent of the Faculty.

No cadet will be permitted, without the approval of his parent or guardian, to take part in a public game of football; nor will permission be given for any athletic game to a student deficient in his studies.

MILITARY DRILL.

There are three regular military drills each week and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This association is regularly organized and has a well furnished room on the first floor of the main building set apart for its exclusive use. Through its weekly meetings it exerts a wholesome Christian influence among the students.

Students are advised to unite with the Association when they enter the Institute.

The ladies of the different churches in Auburn have recently formed an auxiliary association to the Y. M. C. A. of this Institute. Assisted by members of the Faculty, they will hold monthly a joint service of praise in the College chapel and will provide lectures for the occasion.

They have also undertaken to build a special hall for the use of the Association, and will solicit subscriptions for that purpose.

The following are the officers:

W. B. Hamilton.....President.
J. O. Webb.... .....Vice-President.
W. W. Rutland.....Corresponding Secretary.
F. C. Atkinson .....Recording Secretary.
W. L. Thornton .....Treasurer.
F. B. Rutledge.....Librarian.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful. noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide-water. By statute of the State the sale of spirituous liquors and keeping saloons of any kind are forbidden.

BOARDING.

The Institute has no barracks or dormitories and the students board with families in the town of Auburn, and thus enjoy all the protecting and beneficial influence of the family circle.

REGULATIONS.

(1) Each student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the College.

(2) Every absence from recitation or examination is graded zero.

(3) When the term grade of a cadet is lowered by reason of absence for which satisfactory excuse can be rendered, a special term re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(4) Only sickness, as reported by the Surgeon, or being absent by reason of family sickness, will constitute a satisfactory excuse for granting a re-examination.

When a cadet is called away from College by his parents his zeroes for absence are not removed.

(5) The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

(6) Privates of the senior class in full standing who are candidates for graduation may be excused by the President from all military drills, and also students over twenty-one years of age at the time of entering College that are permitted to devote their time to one special study, as chemistry, agriculture or pharmacy, provided the time devoted to drill is spent by them in laboratory work.

No cadet can continue an officer in the corps who during a session is classed in the fourth grade in two or more subjects at any term examination, or in the fourth grade in one subject at two term examinations; nor who receives during the session more than 60 demerits. For failures of officers re-examinations will not be granted.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of distinction are awarded in public on Commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class, provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

HONORS.

Members of the senior class who attain distinction at the final examinations with an average grade, in the subjects required, of 95 per cent. will be published as

GRADUATES WITH HIGHEST HONOR.

Those who attain distinction with an average grade of 90 per cent. and less than 95, are published as

GRADUATES WITH HONOR.

Those who attain less than 90 per cent. and more than 60 per cent. are published as *Graduates.*

Students of the classes lower than the senior, who attain distinction with an average grade in the required subjects of 95 per cent. are published in alphabetical order as having attained the *Highest Distinction.*

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervening intervals reports, giving the grade made by each student, are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the month are held by each professor during the months of October, February and April. Each examination occupies one hour.

At the end of each term written examinations, or written and oral, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations, can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except in extreme cases.



GENERAL LIBRARY.

LIBRARY.

The Library occupies an elegant, well-lighted room in the main building, and also two smaller adjacent rooms. It contains over 16,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

MUSEUM.

The Museum occupies a large room in the third story. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character. It is under the charge of Professor P. H. Mell, to whom specimens as contributions may be sent.

BOARDING HOUSES.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after "call to quarters," or are guilty of any violation of order. The report of the inspector is made to the Commandant on alternate days of the week.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the President, and this permission is given only at the close of a term, except for special reasons.

Permission to board and lodge at separate houses will be granted only to seniors, to cadets twenty-one years of age and to those who are on the "honor roll," except on special conditions.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Incidental fee, per session	$5.00
Library fee, per session	2.00
Surgeon's fee, per session	5.00
	$12.00

These fees are payable on matriculation. By order of the Trustees no fees can be remitted.

For students entering after January 1st, the fees for a half session only are required.

Board, including lodging, fuel and lights, is furnished at $12.50 to $15.00 per month.

For a non-resident of the State there is a charge for tuition of $20.00 per session, payable on matriculation, in addition to the annual fee of $12.00 payable by all students.

The necessary expenses for a session, not including uniforms or books, are for a resident of Alabama, as follows:

College fees	12.00	12.00
Board, lodging, fuel and lights....	112.50	135.00
Washing	9.00	9.00
Total	$133.50	$156.00

By special arrangement with the College authorities, Mrs. M. L. Mitchell, Mr. R. S. Rutland and Mr. B. T. Blasingame will accommodate students with board, lodging, fuel, etc., for $9.50 per month.

By boarding at one of these houses the necessary expenses may be reduced to $106.50 per session. This estimate does not include the cost of the uniform, about $15.00, or of books, say from $5.00 to $15.00, or the laboratory fees in the higher classes, $5.00 or $10.00.

LABORATORY FEES.

For each student in the junior or senior laboratory in chemistry, or in electrical and mechanical engineering, a fee of $5.00 per session is required. This fee is payable on admission to the laboratory, and is not remitted.

NON-RESIDENT STUDENTS.

Tuition for students, not residents of Alabama, is $20.00 per session, unless remitted by the Trustees to worthy students upon the recommendation of the Faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year, to those who obtain a distinction the preceding year or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remitted to sons of ministers of the gospel.

HONOR SCOLARSHIPS.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1900-1901, an honor scholarship, which exempted from tuition fees:

James Henderson Childs .....Georgia.
Berner Leigh Shi .....Georgia.
Dudley Chipley .....Florida.
Sallie Fleming Ordway .....Tennessee.
Walker Dorr Willis .....Florida.
John Eayres Davis Yonge .....Florida.
Karl Edward Lindrose .....Mississippi.
Henry Edward Werner .....Texas.

UNIFORM.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made, by a contractor, of excellent cloth manufactured at the Charlottesville mill. This suit, including cap, costs at present $15.50. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to College property for which he may be liable. General damages are assessed on the body of students.

At the close of the session the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

Fees to be paid on entrance:		
Incidental fee	$5 00	
Library	2 00	
Surgeon	5 00	
Contingent fee	5 00	
Uniform	15 50	
For a resident of Alabama	$32 50	$32 50
Tuition non-resident		$20 00
For a non-resident		$52 50

Besides the above, the student should deposit with the Treasurer enough to pay for books, one month's board, incidentals, amounting to, say, $27.50. Hence, a resident of Alabama should deposit with the Treasurer $60.00; a non-resident, $75.00.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons, or wards, whether for regular charges of college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited checks are drawn on the Treasurer of the College by the Cadet to pay his necessary expenses. These checks are paid only when officially approved. The approval is given only for necessary expenses, as stated in the catalogue, unless specially requested in writing by the parent.

The College cannot be held responsible for the expenses of a student, unless the funds are deposited with the Treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty a thesis, or oration, and read and deliver the same at Commencement, if required by the Faculty.

There may be presented, with the approval of the professor in charge, a carefully written report of special work done in a labora-

tory showing independent investigation and discussion of some subject.

It must be given to the Professor of English by the first of May.

The subject must be submitted for approval by January 1st.

LITERARY SOCIETIES.

There are two literary societies connected with the College—the Wirt and the Websterian. Each has a hall in the main building.

These societies hold celebrations on the evenings of Thanksgiving Day and 22nd of February. A gentleman, selected by the Faculty, is invited to deliver an address before the Literary Societies at Commencement.

To encourage the literary societies the Trustees have directed that a medal be awarded on Commencement day to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection to be determined by the Faculty.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in the presence of the Faculty and students.

The *first and second terms* the students of the junior and sophomore classes are exercised in original orations and declamations.

The *second and third terms* the members of the senior class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

In 1885, the Alumni Society established "The Alumni Scholarship," which makes an annual loan of one hundred and seventy dollars to a beneficiary elected by the society. Young men have thus been enabled to go through college. This scholarship is supported by annual contributions from the Alumni and other friends of the institution.

The beneficiary selected is admitted without charge for tuition or college fees of any character.

Subscriptions should be sent to B. H. Crenshaw, Treasurer, Auburn, Ala.

The annual alumni oration is delivered by a member of the society in Langdon Hall, on Alumni Day, Tuesday of Commencement week.

The following are the officers of the society :

R. F. Ligon, Montgomery, Ala .....President.
T. D. Samford, Opelika, Ala.....First Vice-President.
..... Second Vice-President.
B. H. Crenshaw, Auburn, Ala.....Treasurer.
W. O. Scroggs, Auburn, Ala.....Secretary.
J. F. Webb, Talladega, Ala.....Orator for 1902.

SURGEON.

The surgeon is required to be present at the College daily, to visit at their quarters the cadets that are reported sick, and to give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering college.

ACADEMIC YEAR.

The academic year for 1902-1903 commences on Wednesday, 10th September, 1902, (*second Wednesday after the first Monday,*) and ends on Wednesday, 10th June, 1903, (*second Wednesday after first Monday*), which is Commencement Day.

It is divided into three terms. The first term extends from the opening of the session to the 23d December; the second term begins January 6th, and ends March 14th; the third term continues to the close of the session.

DONATIONS TO THE LIBRARY.

U. S. Government.—Public Documents, 193 volumes.

James W. Stewart, Cleveland, Ohio.—Mark Hanna and Other Essays, by Solon Lauer.

T W. Palmer, Tuscaloosa, Ala.—Official Register of the Officers and Students of the University of Alabama.

Henry T. Coates & Co., Philadelphia.—Casting of Nets, by Richard Bagot.

American Swedenborg Printing and Publishing Society, New York.—The Works of Emanuel Swedenborg, 21 volumes.

Mrs. M. E. Bell, Auburn, Ala.—Church Book of the Ash Creek (Ala.) Baptist Church, 1833-1868.

H. H. Meadows, Atlanta, Ga.—Steam: Its Generation and Use, by Babcock & Wilcox Co.

B. F. Johnson Publishing Co., Richmond, Va.—Elements of Agriculture, by James Bolton McBryde.

Paul I. Murrill, Hickory, N. C—Alkaloidal Estimation, by P. I. Murrill.

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During Session of 1901-1902.

By A. R. Gray, stalagtite from Marion County, Florida; by R. W. Butler, double egg; by Mr. Motley, relic found on Ogletree plantation, near Auburn, Ala.; by M. T. Fullan, skin of boa constrictor from Nicaragua; by James C. Harper, sigillarids from near Birmingham; fossil fern from near Birmingham; by J. R. St. John, Spanish sword; by Miss Mary E. Reese, Indian pipe of peace; by F. J. Houston, cartridge of shell fired from the torpedo boat Porter; by University of Alabama, slate from Clay county; mica schist from Coosa county; slate from Tallapoosa county; tourmalin, graphitic mica schist, mica schist with granite, granite, magnetite, zinc, lead and chert, diorite, quartzite, garnets, quartz rock, zinc blend, actinolite schist, graphite schist, mica schist with garnets, staurolite schist, Talladega slate, corundum, pyrite, Talladega conglomerate, cyanite, gypsum, calcite crystals, barite, plicated slate, Ashland mica schist, gypsum with salt, chrysolite slate, igneous rock,; by Jones-Williams, Indian pipe of peace, shark's tooth; by A. M. McNeel, fossil starfish, shark's teeth, other fossils, iron pyrites, trilobite, petrified bark, fossil oyster shells, fossil vertebra of fish; by C. E. Field, snake; by A. F. Jackson, Florida moss, shells; by Mrs. Dowdell, geode; by E. L. Reese, Indian grinding rock; by Mrs. Lizzie Matthews, petrified wood; by A. S. Hertz, book of flowers from the Holy Land; by S. L. Coleman, coral; by Mrs. O. D. Smith, red iron; by Dudley Chipley, rock from

Niagara Falls, satin spar from England; by J. F. Duggar, cowpea roots with tubercles, cowpea roots with nematodes; by A. F. Whitfield, human skull; by B. S. Patrick, old A. P. I. cadet flag, old East Alabama College cadet flag; by Dr. Remus Persons, insects and shells collected in and around Manila; shells gathered on beach near Yokohoma, Japan; saw of sawfish; venus shells from near Colon.

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2 vials almit from Farbenfabriken Elberfield Co., New York City.

1 package Swift's arsenate of lead, from Merrimac Chemical Co., Boston, Mass.

5,720 lbs. of Kanit, from German Kali Works, New York City.

1,120 lbs. muriate of potash, from German Kali Works.

1 quart Sanders corn, from W. S. Sanders, Damerville, Ga.

900 lbs. Nitrate of Soda, from Propaganda Nitrate of Soda, New York City.

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CALENDAR 1904-1905.

Session Begins	Wednesday, Sept. 7, 1904.
Examination for Admission	Wednesday, Sept. 7, 1904.
First Term Begins	Wednesday, Sept. 7, 1904.
Literary Society Celebration—Thanksgiving Day	Nov. 24, 1904.
First Term Ends	Friday, Dec. 23, 1904.
Second Term Begins	Wednesday, Jan. 4, 1905.
Literary Society Celebration	Wednesday, Feb. 22, 1905.
Senior Class Exercises	Wednesday, Feb. 22, 1905.
Second Term Ends	Saturday, March 11, 1905.
Third Term Begins	Monday, March 13, 1905.
Senior Thesis Reported	Saturday, April 29, 1905.
Sophomore Class Exercises	Monday, May 1, 1905.
Field Day	Monday, May 1, 1905.
Final Examination Begins	Saturday, May 20, 1905.
Commencement Sermon	Sunday, June 4, 1905.
Annual Meeting of Trustees	Monday, June 5, 1905.
Military Exercises, 4 P. M.	Monday, June 5, 1905.
Junior Class Celebration, 8 P. M.	Monday, June 5, 1905.
Alumni Day	Tuesday, June 6, 1905.
Military Exercises, 5 P. M.	Tuesday, June 6, 1905.
Address before Literary Societies, 8 P. M.	Tuesday, June 6, 1905.
COMMENCEMENT DAY	Wednesday, June 7, 1905.

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COMMITTEE ON ATHLETICS,
Professors Ross, Mitcham, Dunstan, Wilcox.

COMMITTEE ON GROUNDS AND BUILDINGS,
Professors Wilmore and Mackintosh.

SECRETARY OF ALUMNI RECORD,
Professor Crenshaw.

AGRICULTURAL EXPERIMENT STATION.

STATION COUNCIL.

CHAS. C. THACH, M. A. ..... President.
J. F. DUGGAR, M. S. ..... Director and Agriculturist.
B. B. ROSS, M. S. ..... Chemist.
C. A. CARY, B. S., D. V. M. ..... Veterinarian.
J. T. ANDERSON, PH. D. .....Chemist in charge of Soil Investigation.
E. M. WILCOX, PH. D. ..... Botanist and Plant Pathologist.
R. S. MACKINTOSH, B. AGR. ..Horticulturist and State Horticulturist.

ASSISTANTS.

C. L. HARE, M. S. ..... Assistant Chemist.
THOMAS BRAGG, M. S. ..... Assistant Chemist.
C. M. FLOYD ..... Superintendent of Farm.
JESSE M. JONES, B. S. ..... Assistant in Animal Husbandry.
H. O. SARGENT, M. S. ..... Assistant Horticulturist.

OFFICER IN CHARGE OF FARMERS' INSTITUTES.

DR. C. A. CARY.

The Institute is a distinctive school of Science, and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts, established by the State in 1872 by endowing it with the land-grant appropriation made by the United States Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

In its course of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty. The Institute thus endeavors to educate as well as instruct, to form character as well as give information of value.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The Institute now possesses facilities for giving laboratory instruction in applied science in the following departments.

I. IN AGRICULTURE.

The farm contains 304 acres, and is supplied with illustrative specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

II. IN MECHANIC ARTS.

The instruction in shop work is used as an auxiliary in technical education, and as a school of manual training in the arts that constitute the foundation of most industrial pursuits. The work performed by the students is instructive in character, and is intended to give the greatest amount of instruction in principles with the least repetition of operations, and the smallest consumption of time. The work is executed from drawings, and the instructor in charge of the classes makes the lesson before the class, or gives such specific directions as may be necessary to enable the student to make it. This is supplemented by individual instruction.

All students in the Sub-Freshman, Freshman, and Sophomore classes take this shop work, three periods a week, each period being two hours long. The purpose is not to teach a trade, but to train the eye, the hand, and the mind to more per-

fect co-operation, a training which will be of value in any pursuit of life. This training involves the principles at the foundation of all trades, and is, therefore, of equal value to a student who wishes afterwards to learn a trade.

Three-phase electric motors are used for driving the different shops, the motors receiving current from the large alternator in the dynamo room. The wood department is located in a room 90x50 feet, and is provided with a surface planer, a combination circular saw, a band saw, a buzz planer, a pattern-maker's lathe, a grindstone, twenty-four wood turning lathes, each with a set of wood turning tools, and thirty benches for carpenter work, with the necessary tools. Special tools for occasional use are kept in a tool room for the purpose, and in addition to the regular carpenter tools in the benches, each student is supplied with a set of chisels and plane irons with a locker to keep them in, and is held responsible for their care and condition.

The forge shop is equipped with twenty-four down draft forges, with anvils, hammers, sledges, and other tools necessary for blacksmith work, including a punch and shear for cutting and punching iron, and a blacksmith drill. The blast is supplied by a blower which is also used for supplying the foundry cupola with blast. The smoke from the forges is removed through underground passages by a 60-inch exhaust fan, and discharged into the chimney.

The foundry is equipped with a 23-inch Colliau cupola, having a melting capacity of 2,000 pounds of iron per hour, the necessary molding tools for bench and floor work, benches, a core oven, ladles, molding flasks, a foundry crane, etc. There is also a brass furnace with crucibles, crucible tongs and the appliances necessary for making brass castings.

The machine shop is a room 30x100 feet, and is equipped with nine 14-inch, two 16-inch, and one 18-inch engine lathes, one 10-inch speed lathe, a 20-inch drill press, a 10-inch sensitive drill, a 16-inch shaper, two iron planers, one 22-inch by 5-feet and the other 26-inch by 6-feet, a back geared universal milling machine with vertical milling attachment, a water tool grinder, a bench grinder, a universal grinding machine, a universal cutter and reamer grinder, a twist drill grinder, and a power hack saw. Three of the engine lathes have compound rests, three have taper attachments, and one is fitted with a turret and a large number of special tools and fixtures which

practically convert it into a manufacturing lathe, and serve to illustrate the methods of manufacture by duplicate parts.

For chipping and filing, eighteen benches are fitted with vises and each student is supplied with hammer, chisels, files, and such other tools as he may need, and a locker in which to keep them. A gasoline engine is installed in one end of the shop, and is used for driving at times when the steam plant is not running.

The tool room is supplied with general machinist tools, such as chucks, drills, reamers, taps, dies, gauges, jigs, and special tools. A convenient room is supplied with lockers for keeping clothes, and basins supplied with hot and cold water for the use of the students. The different shops are equipped with electric lamps, and current is furnished when necessary.

III. IN PRACTICAL CHEMISTRY.

The chemical laboratory is supplied with modern apparatus, and in its equipment affords excellent facilities for instruction in practical chemistry and for investigation.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates sixty students, a special laboratory for Seniors that will accommodate thirty students, a lecture room with a capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

IV. IN ELECTRICAL ENGINEERING.

The electrical laboratory is well equipped with modern appliances for instruction in electrical engineering. It occupies three large rooms in the basement, and is equipped with many instruments of precision.

In addition to resistance boxes, bridges, condensers, galvanometers, dynamometers, wattmeters, photometers, and other laboratory instruments, the department is supplied with representatives of most of the types of commercial electrical instruments from foreign and domestic makers.

The laboratory is also equipped with apparatus for making breakdown tests of insulating materials, up to 30,000 volts, also with spectroscopic apparatus for testing the quality of arc light carbons.

The dynamos occupy a separate building and are operated by a twenty-five horse power Atlas engine, and a sixty-horse power Harrisburg standard engine.

The following machinery is available for purposes of instruction. In direct currents: Twenty-five K. W. General Electric multipolar 125 volt generator; twelve K. W. Edison generator; seven and a half K. W. T.-H. generator; three K. W. Edison generator; three K. W. Weston generator; two and a half K. W. Star generator; nine-light T.-H. arc generator, with lamps; six-light Brush arc generator, with lamps; steam turbine headlight generating set; three twenty-horse power street railway motors; six-horse power motor; one-horse power Crocker-Wheeler motor; several small motors of various kinds.

In alternating currents: Seventy-five K. W. Bullcok three-phase 220 volt revolving field generator; three K. W. Ideal three-phase generator, with set of pulleys for different speeds; one K. W. Fort Wayne alternator, which can be used as an alternator, or as an A. C. or D. C. motor; two ten-horse power Westinghouse three-phase motors, with autostarters (used for supplying power to shops); General Electric five-horse power three-phase motor; Stanley one-horse power two-phase motor; a number of transformers, including phasing transformers, transforming from 220 volts three-phase to 500 volts two-phase; several smaller A. C. motors of various patterns.

V. IN PHYSICS.

The physical laboratory occupies two rooms, one of these being permanently darkened for experimental work in light.

It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, a horizontal comparator, a Kater's reversion pendulum, balances, etc., and a quantity of minor apparatus.

Recently there has been added a concave grating spectrograph, a large induction coil of 12-inch spark, and other apparatus of value.

VI. IN BOTANY AND BIOLOGY.

The laboratory for plant morphology and histology adjoins the lecture room of the professor, and is well equipped for investigation along these lines. The experimental work in plant physiology and pathology is conducted by the students in the laboratory and adjacent greenhouse, both of which are being rapidly equipped and altered to accommodate this important line of work.

A start has been made toward the development of a Botanic Garden, and it is the intention to add as rapidly as possible representatives of the native flora of this State, and a good collection of the native medicinal plants. In this manner it is planned to secure from the garden its maximum assistance in the work of instruction. Special work in plant breeding and biometry will also be conducted in this garden.

VII. IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, models of bridges, etc., is provided for the use of the students, and the customary exercises in the field are given.

VIII. IN DRAWING.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing room, which will accommodate fifty students, is provided, with tables, lock-boxes, etc.

IX. IN MECHANICAL ENGINEERING.

A very important adjunct to the text book work in the mechanical engineering course is the laboratory or experimental work that the students do during the Senior year. Most of this work is now done in the lower story of the annex to the chemistry building, a room 30x60 feet in size. Steam is supplied by the boiler in the boiler house through a 3-inch steam main.

The equipment available for this instruction is as follows: A 35-horse power Cross compound engine, specially arranged for

experimental work; a Wheeler surface condenser, and Worthington air pump and circulating pump; a 60-horse power Harrisburg engine; a 25-horse power Harris-Corliss engine; a 20-horse power Atlas engine; a 100-horse power Heine boiler; a Deane duplex steam pump; a 4½ horse power gasoline engine; an Ericsson hot air engine; a New York air pump; a Westinghouse air pump; an Ingersoll-Sargent air compressor; an electric headlight engine, indicators, calorimeters, thermometers, a pyrometer, scales, steam gauges, and an apparatus for testing gauges.

For testing the strength of materials, there is a 35,000-pound Riehle Bros. testing machine, arranged for making transverse, compression, and tension tests, and micrometer apparatus for measuring the deformation of a specimen under stress. In addition to the above working apparatus, there are a number of sectional models of machines and appliances, and models of mechanical movements, all of which are extremely useful for the purposes of instruction.

X. IN MINING ENGINEERING.

A fully equipped laboratory has been established for work in determinative mineralogy. Ores of economic importance and rock-forming minerals are studied. Work tables to accommodate twenty-eight students are supplied with gas, water, reagents, blow pipes, and a standard set of measuring crystals.

There is a drawing room fitted up for instruction in mechanical drawing, making blue prints, maps, topographical drawings, tracings and all drafting pertaining to mining operations.

XI. IN PHYSIOLOGY AND VETERINARY SCIENCE.

There has been constructed for the veterinary department a new and separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, and museum with skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room constructed, with cement floor and north roof light, especially for this department. This laboratory is used by the professor and students each afternoon for three months.

XII. IN PHARMACY.

The laboratory of this department occupies the second floor of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations.

The students work in the laboratory with the professor from five to eight hours, six days in the week.

The facilities are increased as means are available.

XIII. IN HORTICULTURE.

A plat of twenty acres is devoted to orchards, vegetables, fruits, flowers and grapes. There is a well appointed greenhouse, fitted with modern apparatus for ventilation, heat, etc. Accurate experiments are conducted in this department in fruit growing and the culture of the various vegetables adapted to this climate. Students are given in this laboratory practical instruction in grafting, budding, spraying, fertilization, gathering, and marketing crops.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and, in addition, the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE BUILDINGS.

The frontispiece is a representation of the main College building. It is 160x71 feet, and contains forty-five rooms. This building is not used for dormitories for students, but is appropriated to purposes of instruction and investigation.

It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc.

LANGDON HALL.

This is a two-story building, 90x50 feet. The second story is the audience hall, used for commencement and other public occasions.

The first story is appropriated to the laboratory of mechanic arts.

THE CHEMICAL LABORATORY.

As shown on the opposite page, this is a two-story structure, 40x60 feet, with a rear projection, 35x60 feet, of one story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and terra cotta ornamentation.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains improved working tables, with water, gas and every necessary appliance for chemical work.

The laboratory for advanced work in chemistry will accommodate thirty students and is equipped in the same manner. Adjoining this are two rooms which are used respectively as a balance room, and a room for work with spectroscope, polariscope, etc.

The second story contains a lecture room with seats and tablets for eighty students. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and mechanical chemistry, prominent subjects taught in the institution.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building, containing rooms for pharmacy, mechanical engineering and drawing.

The Chemical Laboratory for the Agricultural Experiment Station occupies a building 60x26 feet and is appropriated exclusively for chemical investigation and research, and not for instruction.



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GRADUATES IN 1903.

CLASS OF 1903.

HONORS.

Members of the Senior Class who attained distinction with a grade of 95 per cent. are Graduates with Highest Honor. Those who attained a distinction with a grade of 90 per cent. and less than 95, are Graduates with Honor. Those who attained less than 90 per cent. and more than 60 per cent. are Graduates.

DEGREES.

BACHELOR OF SCIENCE.

GRADUATES.

Albert Miner Avery ..... Florida
Robert Trammell Bagby ..... Lee
Marshall Leonard Bize ..... Georgia
James Victor Blackwell .....Calhoun
Rush Pearson Burke .....Montgomery
Thomas Arthur Caddell .....Etowah
Dudley Chipley .....Florida
Charles Sanders Culver .....Lee
Howard Ellis Davis .....Mobile
William Watson Davis .....Mobile
William Wert Dinsmore .....Morgan
Thomas Joseph Dowdell .....Montgomery
Ernest Cecil Haynie .....Lee
Henry Hiden .....Jefferson
George Bloise Hill .....Talladega
Wilburn Hill .....Etowah
Roy Kauffman .....Mobile
Howard Malcom Kilpatrick .....Georgia
Walter Joseph Knight .....Mobile
Percy McLean Marshall .....Georgia
Winfield Scott Martin .....Jefferson
Robert Peyton Mims .....Jefferson

John Harris Mitchell ..... Georgia
Thomas William Morgan ..... Jefferson
James Porter Paterson ..... Montgomery
Wallace Powell Pruitt ..... Lowndes
Paul Rigney ..... Madison
William Watson Rutland ..... Chambers
Clifford Philip Rutledge ..... Lee
Hans Schmidt ..... Jefferson
John Rice Searcy ..... Conecuh
Julian Cassius Smith ..... Macon
Edward Taylor ..... Marengo
Louis Earle Thornton ..... Florida
William Lawson Thornton ..... Talladega
Holmes Fielding Troutman ..... Georgia
Filo Harris Turner ..... Florida
Joseph Dorrah Walker ..... Jefferson
Henry Matthew Yonge ..... Florida

GRADUATES WITH HONOR.

George Fouche Freeman ..... Cherokee
Ethel Julia Harwell ..... Lee
Sallie Fleming Ordway ..... Tennessee
William Bee Stokes ..... Marion

POST-GRADUATE DEGREE.

MASTER OF SCIENCE.

Frederick Cornelius Atkinson ..... Dale
Charles Homer Billingsley ..... Elmore
Jesse Wright Boyd ..... Lee
Marion Lara Brown ..... Georgia
William Bulger Hamilton ..... Elmore
Dallas Tabor Herndon ..... Georgia
Edward Andrew Miller ..... Marshall
Enrico Alfonso Washington ..... Georgia
John Eayres Davis Yonge ..... Florida

DISTINGUISHED STUDENTS.

DISTINCTIONS.

Students who receive a grade above 90 per cent. and less than 95 in three studies in the Freshman class, in four in the Sophomore class, in five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent. are awarded Certificates of Highest Distinstion.

FRESHMAN CLASS.

DISTINCTION.

John Cleveland Bryan ..... Georgia
Chester King Gould ..... Mobile
John Wesley Harris ..... Lee
Sidney Long ..... Butler
William LeRoy Mitchell ..... Lee
Robert Morris Prather ..... Autauga
Noah Parker Renfro ..... Lee

HIGHEST DISTINCTION.

James Robertson Black ..... Lee
Bertram Ezekiel ..... Butler
Claude Stewart McNeely ..... Tallapoosa
Frederick Henry Mohns ..... Jefferson
William Lee Newberry ..... Jefferson

SOPHOMORE CLASS.

DISTINCTION.

Harvey Emory Bennett ..... Lee
Edwin Valdivia Caldwell ..... Shelby
Shaffer Hood ..... Tallapoosa
John Ross Phillips ..... St. Clair
George Wallace Postell ..... Jefferson

James Rhett Smith ..... Butler
Oliver Earle Young ..... Sumter

HIGHEST DISTINCTION.

Robert Platt Boyd ..... Montgomery
John Vernon Denson ..... Chambers
Ralph Dudley ..... Georgia
Earle Eugene Jenks ..... Mobile
Walter Robert Samford ..... Lee
Henry Howard Thornton ..... Talladega

SPECIAL STUDENTS.

DISTINCTION.

Hiram Victor Arnold ..... Florida
Samuel Ashton ..... Jefferson
Minos Edward Gibbs ..... Jefferson
May Persis Harvey ..... Lee
Laurens Walter Pierce ..... Elmore

JUNIOR CLASS.

DISTINCTION.

George Bridges Foss ..... Mississippi
Allen Green Jones ..... Dallas
Samuel Thomas Jones ..... Sumter
William Hugh McEniry ..... Jefferson
Arthur Wilhelm Merkel ..... Jefferson
Frederick Shealy Middleton ..... Chambers
James Leonidas Murphy ..... Conecuh

HIGHEST DISTINCTION.

George Dunglinson ..... Talladega
John William McConnell ..... Jefferson
William Martin Shepard ..... Mobile
Berner Leigh Shi ..... Georgia

COMMENCEMENT ADDRESS.

Richard H. Edmonds, Baltimore, Md.

CATALOGUE OF STUDENTS.

FOR SESSION OF 1903-1904.

Graduate Students.

James Victor Blackwell ..... Calhoun
Rush Pearson Burke ..... Montgomery
Thomas Arthur Caddell ..... Etowah
Charles Sanders Culver ..... Lee
William Watson Davis ..... Mobile
Thomas Joseph Dowdell ..... Montgomery
Bell George Hazard ..... Calhoun
Jesse M. Jones ..... Lee
John Harris Mitchell ..... Georgia
Thomas William Morgan ..... Jefferson
James Porter Paterson ..... Montgomery
Laurens Walter Pierce ..... Elmore
John Rice Searcy ..... Conecuh
Edmund Rhett Taber, Jr. ..... Montgomery
Holmes Fielding Troutman ..... Georgia

SENIOR CLASS.

William LeRoy Alston .....South Carolina
Bessie Susan Alvis .....Lee
Bessie Harden Bagby.....Lee
Frank Gordon Bell.....Georgia
William Arthur Branan.....Macon
Andrew Duke Cameron.....Russell
Julian Sidney Chambers.....Georgia
James Henderson Childs.....Calhoun
Felix Franz Otto Doering.....Mobile
Louis Warren Duffee.....Talladega
George Dunglinson, Jr.....Jefferson
Verlie Roy Emrick.....Lowndes
Edwin Washington Ewing, Jr.....Mississippi
George Bridges Foss.....Mississippi

Walter Somerville Going.....Jefferson
Heyman Hagedorn .....Georgia
Leonard Park Hall.....Jefferson
Walter Leonidas Harwell .....Lee
Guy David Hawkins .....Jefferson
Thomas Vandiver Herndon.....Henry
Cassius Rex Hudson.....Lee
James Dougherty Hudson.....Georgia
Walter Wier Johnston.....Calhoun
Allen Green Jones.....Dallas
Samuel Thomas Jones.....Sumter
Isham Kimbell .....Clarke
†Alexander King, Jr.....Lee
†Tracy Lay .....Etowah
William Richard Lee.....Jackson
Haly Lisenby .....Henry
Henry Richard Luscher.....Mobile
Isaac Sadler McAdory.....Jefferson
John William McConnell, Jr.....Jefferson
Henry McDonnell, Jr.....Madison
John McDuffie, Jr.....Monroe
Thomas Pettus McElderry.....Talladega
William Hugh McEniry.....Jefferson
Thomas Hatcher Matson .....Talladega
Arthur Wilhelm Merkel .....Jefferson
Frederick Shealy Middleton.....Chambers
Frank Elmer Miller.....Calhoun
James Leonidas Murphy.....Conecuh
Fulton Pace .....Tallapoosa
Edward Owen Perry.....Georgia
Charles McPherson Aduston Rogers.....Sumter
Cicero Rudd .....Lee
William Martin Shepard .....Mobile
Berner Leigh Shi.....Georgia
Zachary Pope Smith, Jr.....Jefferson
†Joseph Churchill Strong, Jr.....Mobile
Albert Lee Thomas.....Lee
Alma Cole Tompkins.....Lee
William Micou Turnley.....Montgomery
†Willis Henry Grady Venable.....Jefferson
Charles Clement Voyle.....Florida

William Francis Ward.....Lee
John Mayer Wilson, Jr.....Clarke
William Mason Wilson.....Etowah
†Not in full standing.

JUNIOR CLASS.

†Robert Evan Allison.....Sumter
Eric Alsobrook .....Lee
Franklin King Beck.....Wilcox
Frederick Rudulph Bell.....Lee
Harvey Emory Bennett.....Lee
James Seaborn Boyd.....Montgomery
Robert Platt Boyd.....Montgomery
Thomas Cobb Bradford.....Lee
James Austin Buchan.....Pike
Sylvanus Leonidas Burney, Jr.....Chambers
Edward Harman Cabaniss, Jr.....Jefferson
Joel Philip Carter.....Pike
Frank Furniss Cawthon.....Dallas
William Brasher Clayton.....Barbour
Lemuel Jackson Cobb.....Cherokee
†James Henry Coleman.....Georgia
Obie Boland Cooper.....Marshall
John Ray Copeland.....Marshall
Robert Cowan .....Lee
John Vernon Denson.....Chambers
Ralph Dudley .....Georgia
Edgar Ervin Esslinger.....Madison
Josiah Flournoy .....Georgia
Kess Lawson Forrester.....Houston
†William Humphrey Foy.....Barbour
Miller William Francis.....Coosa
Alice Brown Frazer.....Mobile
Samuel Luther Gipson.....DeKalb
Leonard Graham Gresham.....Autauga
May Persis Harvey .....Lee
Morris Abram Hartz.....Georgia
†Shaffer Hood .....Tallapoosa
Frank Parkinson Howard.....Macon
Robert Lee Hudson.....Marengo
†Frank Paul Hurt.....Jackson

Earle Eugene Jenks.....Mobile
Clifford Hasting Johnson.....Georgia
Earle Kauffman .....Mobile
Joseph Cabot Kellett.....Marshall
Albert Roy Killebrew.....Dale
†Walter Eugene Knox, Jr.....Calhoun
Richard McCall McCulloh, Jr.....Louisiana
John Howard McEniry.....Jefferson
Bernard McLaurine .....Bullock
Claude Cooper McLean.....Covington
Enoch Lester Miller.....Marshall
Louis Walton Montgomery.....Lee
James Bruce Moseley, Jr.....South Carolina
Clarence LaFayette Mullin.....Lee
Cicero Louis Nelson.....Baldwin
John Haygood Paterson.....Montgomery
Wert Horace Peace.....Jefferson
†Walter Werle Peagler.....Butler
Sara Woods Pearce.....Calhoun
Henry Clarence Perkins.....Barbour
Burke Benjamin Philips.....St. Clair
George Wallace Postell.....Jefferson
Francis Esten Purifoy.....Wilcox
Forney Renfro .....Lee
Randolph Smith Reynolds.....Calhoun
Charles Claude Rigney.....Madison
Walter Robert Samford.....Lee
James Harrison Schuessler.....Chambers
Linwood Seale .....Sumter
George Burton Skinner.....Marengo
†John Floyd Smith, Jr.....Calhoun
†James Rhett Smith.....Butler
†William Hinton Tagert.....Mobile
John Edward Thigpen.....Lowndes
Henry Howard Thornton.....Talladega
Charles Spurgeon Waldrop.....Jefferson
Drury Lee Walker.....Jackson
David Gaston Wilkinson.....Wilcox
Robert Hammet Witherspoon.....South Carolina
Oliver Earle Young.....Sumter

†Not in full standing.

SOPHOMORE CLASS.

Morris Simpson Allen.....Calhoun
Otis DeWitt Alsobrook.....Lee
Martha Louise Anderson.....Lee
Philip Holcombe Avary.....Lee
Henry Madison Averyt.....Lee
James Lawrence Bailey, Jr.....Marengo
John Baker .....Conecuh
Camilla Mott Beasley.....Lee
Modesta Francis Beasley .....Lee
James Robertson Black.....Lee
William G. Boyd.....Tennessee
†Edwin Matherson Bragg.....Lee
Chester Sterrett Browne.....Shelby
†Emmett West Buckley.....Mobile
Charles Taylor Butler.....Madison
†Knox Hardwood Camp.....Talladega
Casper Carl Certain.....Madison
Dillard Hazelrigg Clark, Jr.....Florida
Lynn Lewis Conner.....Macon
Willard Cooper .....Georgia
Jesse Oliver Cosper.....Colbert
Benjamin Harris Cross.....Lee
†James Lile Cross.....Lee
†Julian Jarnigan Culver.....Lee
Ernest Percival Davis.....Florida
Howard Hall Davis.....Florida
Charles Abiatha Dean.....Lee
Nimrod Davis Denson, Jr.....Chambers
Thomas Lewis Dickson.....Lee
Charles Garrison Dillard, Jr.....Madison
George Traylor Edwards.....Dallas
Bertram Ezekiel .....Butler
Samuel Burwell Fort.....Dallas
James Clark Francis.....Coosa
George Hardaway Frazer.....Lee
Mell Alexander Frazer.....Mobile
William Caffey Garrett.....Jefferson
Frederick Emanual Geibel.....Montgomery
Minos Edward Gibbs.....Jefferson
Benjamin Shields Gilmer.....Choctaw

Chester King Gould.....Mobile
Lynwood William Gray.....Calhoun
DuPont Guerry, Jr.....Georgia
Lyman Compton Hall.....Talladega
Leoline Hammack .....Lee
†Irving Skinner Hannon.....Mobile
Preston Brooks Harrell, Jr.....Dallas
Lieu Dolphus Hawkins.....Tuscaloosa
Frank Hertz .....Georgia
Sidney Herzfeld .....Tallapoosa
George Estes Hicks.....Talladega
Gilbert Russell Hollinger.....Wilcox
John David Hudson.....Lee
William Francis Jordan .....Madison
Cincinnatus Decatur Killebrew.....Dale
Frank Dansby King.....Marengo
James Pierce Ledyard.....Montgomery
William Leonard Lett.....Lee
Charles Felton Little.....Lee
Arthur Logue .....Wilcox
Sidney Long .....Butler
Charles Pollard Marks.....Jefferson
William Gaston Martin.....Lee
William James McBride.....Morgan
†Hugh Francis McElderry.....Talladega
Abner Charles McGehee.....Montgomery
Claude Stewart McNeely.....Tallapoosa
William Monroe Meredith.....Greene
Hinton Alfred Middleton.....Chambers
John Augustus Miller.....Calhoun
Henry Gaston Mitchel.....Tennessee
William LeRoy Mitchell.....Lee
Frederick Henry Mohns.....Jefferson
David Hampton Morris, Jr.....Geneva
Wilbur Napoleon Morris.....Geneva
Edward Preston Murphy.....Butler
William Lee Newberry.....Jefferson
Robert Lee Nowlin.....Etowah
Thomas Henry Pattison.....Lee
Julius Franklin Peavy, Jr.....Escambia
Henry Petersen .....Jefferson

Samuel Pouncey ..... Geneva
James Marion Poyner ..... Dale
Robert Morris Prather ..... Autauga
Daniel Mitchell Rencher ..... Perry
Noah Parker Renfro, Jr ..... Lee
†Royden Keith Stanley ..... Chambers
Frederick Weeden Teague ..... Montgomery
Felix Eugene Watkins, Jr ..... South Carolina
Fletcher Gordon Webb ..... Lee
†James Cox Webb ..... Marengo
Clifford Anthony Marian Weber ..... Jefferson
Adolphus Weil ..... Montgomery
Clarence Paul Welles ..... South Carolina
Hubert Whitaker ..... Louisiana
John Leo Woolf ..... Calhoun
Claude Wright ..... Pike
†Not in full standing.

FRESHMAN CLASS.

†Frank Cecil Alexander ..... Jefferson
John Davidson Alexander ..... Marengo
†Clifford Goodman Arbery ..... Calhoun
Bennett Bagby ..... Lee
Byron Breckingridge Barnes ..... Greene
Stephen Radford Batson ..... Jefferson
Charlton Eugene Battle, Jr ..... Georgia
James Edmund Fulton Beattie ..... St. Clair
William Rufus King Beck ..... Wilcox
Milton Stanhope Brasfield ..... Marengo
George Marvin Brinson ..... Montgomery
William Franklin Brooks ..... Montgomery
James Daniel Browder ..... Sumter
Albert Cook Bryant ..... Wilcox
John Wilton Burton ..... Lee
Theron Cannon ..... Fayette
†Tolbert Fanning Cheek, Jr ..... Jefferson
Benjamin O'Connor Childs ..... Georgia
Sanford Henry Cohen ..... Georgia
Edward Tarleton Collier ..... Montgomery
Henry Hamlet Constantine, Jr ..... Calhoun
Charles VanWormer Cornell ..... Lee

Clarence Edward Cowan.....Clarke
†William Henry Crawford.....Montgomery
†Shelby Montgomery Cullom.....Jefferson
Frederick Curtis .....Escambia
Marion Brooks Davis.....Geneva
John Cameron Dow.....Barbour
Richard Hodges Drake.....Lee
Grover Cleveland Emmons.....Escambia
Theodore Keller Eppes.....Jefferson
George Robert Farnham.....Conecuh
Frank Ferguson .....Jefferson
William Morris Given, Jr.....Jefferson
Richard Chiles Gowdey.....Sumter
†Edgar Daniel Greene.....Chambers
Seymour Hall .....Jefferson
William Hardie, Jr.....Jefferson
Ambrose Harwell .....Lee
John Henry Harper.....Perry
Jackson Martin Hobbie.....Montgomery
Charles Mell Hudson.....Lee
George Griffin Hughes.....Marion
Thomas Aurea Ingram.....Calhoun
Lovic Boyd Jeter.....Geneva
Herschel Victor Killebrew.....Georgia
Henry Eugene Kimbrough.....Wilcox
Chester Brannon Knapp.....Lee
John Ernst Kumpe.....Lawrence
William Morris Lacey.....Jefferson
Guy Lipscomb .....Marengo
William Spence Lurton.....Florida
Drury Powers Malone .....Georgia
Frederick McGehee .....Chambers
Norman Burns McLeod.....Clarke
Oscar Hall McMillian.....Greene
Albert McPherson .....Lee
Thomas Wilson Milner.....Calhoun
Alfred Holley Mitchell.....Lee
Thomas Byrd Mobley.....Escambia
Earle Moore .....St. Clair
†Cornelius VanCleef Morris.....Colbert
†Albert Moulthrop .....Barbour

James Madison Douglas Page.....Jefferson
DeWitt Thomason Peavy.....Escambia
Alexander Ploeger .....Jefferson
Harry Popper .....Georgia
Bernice Eugene Prather.....Lee
Grover Cleveland Prowell.....Marengo
Dorsey Marriott Rice.....Georgia
Clifford Bartlett Richardson.....Colbert
Thurman Harold Robertson.....Perry
Claude Jonathan Rogers.....Jefferson
Daniel Trueheart Shepard.....Mobile
Lucien Hamilton Shepard.....Mobile
Samuel Robert Shi.....Georgia
Lynn Shook .....Jackson
Richard Walpole Sistrunk.....Lee
Edward Hunter Cobb Smith.....Macon
Harry Smith .....Montgomery
Roscoe Owen Stephenson.....Walker
William Charles Streit.....Jefferson
Benjamin Marcus Tarver .....Dallas
†John Bass Tarver.....Bullock
Paul Lee Taylor.....Jefferson
Fletcher Jackson Thagard.....Butler
Joseph Atkinson Thomas.....Georgia
Morgan Dillard Thompson.....Tallapoosa
Ernest Wood Thornton.....Talladega
James Ernest Threadgill.....Marengo
Samuel Augustus Threadgill.....Marengo
William Reeves Vandiver.....Talladega
Horace Van De Voort, Jr.....Wilcox
Arthur Edmund Voyle.....Florida
Adie Goggans Walker.....Coosa
†Earle Volney Walkley .....Lee
Robin Monroe Webb.....Jefferson
LeRoy George Weber.....Jefferson
†Samuel Carter Weems.....Bullock
Henry Tompkins White.....Colbert
Ralph Chester Williams.....Russell
Thomas McCottry Williams .....Lowndes
†Ulmont Boaz Williams.....Jefferson
Daniel Elmer Wilkinson.....Florida

Evans Beauchamp Wood.....Pike
Homer Waller Wright.....Lee
Edmund Augustus Wright.....Tennessee
James Alto York.....Dale
Sherwood M. Young.....Lee
†Not in full standing.

SPECIAL AND IRREGULAR STUDENTS.

Lucious Geneve Adams.....Mech. (2d year)..... Talladega
Henry Alexander Allison..E.&M.E. (2d year)..... Sumter
Samuel Wilbert Archibald...Agr. (1st year)..... Greene
Chester Garfield Arthur....Mech. (2d year)..... Jefferson
Samuel Ashton.....E.&M.E. (2d year)..... Jefferson
George Cleveland Blanks....Ph. (2d year)..... Shelby
Samuel Davis Brown.....E.&M.E. (1st year)..... Georgia
Henson Estes Bussey.....E.&M.E. (2d year)..... Jefferson
Dupree Clay Cameron.....Agr. (1st year)..... Greene
Turner Christian Cameron...Ph. (2d year)..... Greene
Walter Bibb Clark.....Agr. (1st year)..... Montgomery
Reuben Brackston Cotney...Mech. (1st year)..... Randolph
Helen Frances Craig.....Chem. (1st year).....North Carolina
John Edmon Cross..... Jefferson
Louis Allen Davis..... Florida
James Louis Dean.....Ph. (2d year)..... Montgomery
Walker Hamilton Durham...Ph. (2d year)..... Georgia
Ernest Stout Ford.....Ph. (1st year)..... Dale
John Thomas Formby.....Ph. (1st year)..... Calhoun
Howard Wilson Going.....Mech. (1st year)..... Jefferson
John Joseph Griffin, Jr.....Ph. (2d year)..... Dallas
Malcolm Hanna.....Ph. (2d year)..... Florida
Hilary Herbert Henderson..... Butler
Ella Theolian Hildreth.....Chem. (1st year)..... Morgan
Harry Lowry Hooper.....Chem. (1st year)..... Dallas
Wallace Duskin Hogue.....Agr. (2d year)..... Hale
James Elliott Holt.....Mech. (2d year)..... Lee
Percy Wilbur Hudson.....Agr. (1st year)..... Lee
George Wallace Jackson.....Ph. (2d year)..... Lee
Emmett Llewllyn Jones.....Chem. (1st year)..... Calhoun
Walter Maurice Jones-Williams...E. & M. E..... Lee
Alexander Stephen Knowles.Chem. (1st year)..... Jefferson

Edward Philip Lacey..... Jefferson
Lufay King Lanier.....Agr. (1st year)..... Georgia
James Riley Lindsey.....Mech. (1st year)..... Escambia
Caleb Howell Lindsey.....Mech. (1st year)..... Mobile
Henry Marvin McLeod.....Mech. (1st year)..... Clarke
Robert Kinnard Martin.....Ph. (2d year)..... Jefferson
Jamie Roger Mason.....Agr. (1st year)...British Honduras
Lee Penn Montgomery..... Lee
Harry Lee Moody.....Ph. (1st year)..... Calhoun
William Pittman Moon..... Coosa
John Cladius Morris.....Ph. (2d year).....Blount
William Harris Owens.....Ph. (1st year).....Cleburne
Thomas Roswell Parish, Jr...Ph. (1st year)..... Barbour
Helen Tracy Parsons..... Kansas
Gilder Lemuel Payne.....E.&M.E.(1st year)..... Jefferson
Bennett Henderson Pearce...Agr. (1st year)...British Honduras
Monroe Thomas Penn..... Lee
William W. Perdue.....Ph. (2d year)..... Lowndes
Hugh Langdon Quin.....Ph. (1st year)..... DeKalb
James Reid.....Ph. (2d year)..... Barbour
Thomas Andrew Riley..... Jefferson
Angel Esteban Sanchez.....Agr. (1st year)..... Nicaragua
Arthur Claude Smith.....Ph. (1st year)..... Elmore
Herbert West Smith.....Mech. (1st year)..... Jefferson
Frederick David Spruance..Mech. (1st year)..... Colbert
Henry Harvey Thomas.....Ph. (2d year)..... Tallapoosa
Lucion Blacbon Thornton..... Talladega
Luther Tisdale.....Ph. (2d year)..... Conecuh
Clara Daniel Walkley..... Lee
Walter Henry Walters.....Ph. (2d year)..... Pike
Albert Thornton Ward.....Chem. (2d year)..... Lee
Francis Hobbs Watson....E.&M.E. (2d year)..... Dallas
Carl Wharton.....Ph. (2d year)..... Cherokee
William Thomas White..... Hale
Preston Young Whitman....Ph. (1st year)..... Perry
Broughton Wilkinson..... Butler
Kate Wills..... Lee
Ralph Gordon Williams...E.&M.E. (2d year)..... Jefferson
James A. Wood..... Jefferson

SUB-FRESHMAN CLASS.

William Anson Ballow.....Marengo
Robert Evans Barnes.....Monroe
Benjamin Franklin Bell.....Barbour
Samuel Jackson Bolling.....Butler
George Edwin Bradford.....Lee
Charles Leonard Chambers.....Jefferson
George McCoun Cook.....Wilcox
Roy Dobson .....Randolph
Benjamin Elliott, Jr.....Sumter
Bush Slaughter English.....Monroe
Jasper Nuton Downs.....Jefferson
Charles Rosenstihl Dudley .....Russell
James Albert Fields.....Jefferson
Frederick Richmond Franks.....Talladega
Rudolph William Gallasch .....Mobile
Octavio Gonzalez .....Cuba
Dewitt Clinton Gordon.....Wilcox
William Jay Gould.....Jefferson
John Barnett Griffis.....St. Clair
Arthur Louis Hinckley.....Mobile
John Lithen Jernigan.....Escambia
Clement Richardson Jones.....Wilcox
Robert Augustus Lee, Jr.....Houston
Samuel Currie Matthews.....Chilton
John Marcus McClellan, Jr.....Georgia
Jackson William McGowan.....Escambia
Robert Stuart McWhorter.....Lowndes
Holsey Hill Mitchell.....Russell
Peyton Jenkins Moore.....Lee
Edward Cobb Motley.....Lee
Robert Trent Pearce.....Chambers
Jackson Reid Powell.....Butler
Osie Clyde Prather.....Lee
Obie Riddle .....Coosa
John Routledge .....Jefferson
Thomas Rayburne Samuel.....Marshall
Jere Mason Scarrit.....Florida
James Lister Skinner.....Lee
Olin Conway Skinner.....Lee

Percy Marsh Smith, Jr.....Choctaw
James Gardner Somerville.....Pickens
Thomas Whit Sparks.....Walker
Grover Cleveland Stallworth.....Monroe
Samuel Ernest Starr.....Wilcox
John Bowie Steadham.....Lee
James Thomas Steele.....Marengo
Theodore Abner Steely.....Washington
Frederick Norman Stephens.....Barbour
Wilkins Thompson.....Bullock
Prentiss Ulmann Threadgill.....Wilcox
Cecil Corniff Walkley.....Lee
Bernard Augustus Webb.....Lee
Henry Zolliecoffer Wilkinson.....Butler
Balus Hibbler Windham.....Pickens
Thomas Clark Windham .....Pickens

SUMMARY.

Graduate Students	15
Senior Class	58
Junior Class	75
Sophomore Class	97
Freshman Class	109
Special and Irregular Students	71
Total in College Classes	425
Sub-Freshman Class	55
Total	480

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	412	Geology	40
History	276	Civil Engineering	47
French	32	Electrical Engineering	61
German	43	Mechanical Engineering	64
Latin	119	Mining Engineering	12
Mental Science	16	Drawing	380
Political Economy	50	Mechanic Arts	305
Mathematics	402	Military Department	431
Chemistry	181	Mineralogy	36
Chemical Laboratory	176	Physical Laboratory	59
Agriculture	125	Physiology	67
Physics	274	Veterinary Science	10
Botany	63	Pharmacy	34
Horticulture	18	Bacteriology	12

RESIDENCE BY STATES.

Alabama	430
Georgia	26
Florida	6
Cuba	1
Mississippi	1
Tennessee	3
Louisiana	3
North Carolina	1
Nicaragua	1
Kansas	1
South Carolina	5
British Honduras	2
Total	480

MILITARY ORGANIZATION.

1903-1904.

President,

CHARLES COLEMAN THACH.

Commandant,

COL. BENJAMIN S. PATRICK.

Surgeon,

J. H. DRAKE.

Battalion Staff,

Cadet Captain B. L. SHI, Assistant to the Commandant.
Cadet Captain J. S. CHAMBERS, Adjutant.
Cadet Captain W. S. GOING, Quartermaster.
Cadet First Lieutenant W. L. HARWELL, Principal Musician.
Cadet First Lieutenant I. KIMBELL, Assistant Adjutant.
Cadet Sergeant F. P. HURT, Sergeant Major.
Cadet Sergeant M. W. FRANCIS, Quartermaster Sergeant.

Cadet Captains,

1. J. H. Childs.
2. J. McDuffie.
3. W. M. Wilson.
4. H. R. Luscher.

Cadet First Lieutenants,

1. A. G. Jones.
2. Geo. Dunglinson.
3. Z. P. Smith.
4. T. H. Matson.
5. J. D. Hudson.
6. T. V. Herndon.
7. L. W. Duffee.

Cadet First Sergeants,

1. O. E. Young.
2. W. H. Foy.
3. R. M. McCulloh.
4. J. H. Paterson.

Cadet Sergeants,

1. H. H. Thornton.
2. R. P. Boyd.
3. J. S. Boyd.
4. R. Dudley.
5. E. H. Cabaniss.
6. E. Alsobrook.
7. L. Seale.
8. E. E. Esslinger.
9. J. E. Thigpen.
10. L. G. Gresham.
11. H. E. Bennett, color sergt.
12. J. V. Denson.
13. G. W. Postell.
14. C. C. Rigney.
15. J. H. Schuessler.
16. O. B. Cooper.

Cadet Corporals,

1. C. K. Gould.
2. F. H. Mohns.
3. C. S. McNeely.
4. J. R. Black.
5. H. A. Middleton.
6. F. W. Teague.
7. D. M. Rencher.
8. M. S. Allen.
9. M. A. Frazer.
10. L. C. Hall.
11. C. A. Dean.
12. S. Long.
13. H. Whitaker.
14. N. P. Renfro.
15. L. W. Gray.
16. H. Petersen.

The A. P. I. Cadet Band.

M. THOS. FULLAN, Bandmaster.

W. L. HARWELL, Principal Musician.

O. B. COOPER, Drum Major.

F. G. Bell.
L. J. Cobb.
C. V. Cornell.
C. A. Dean.
R. H. Drake.
R. Dudley.
V. R. Emrick.
G. B. Foss.
G. H. Frazer.
G. D. Hawkins.
H. Hagedorn.
J. D. Hudson.
C. S. McNeely.
W. L. Newberry.
W. R. Samford.
A. L. Thomas.
E. V. Walkley.
C. P. Welles.

Cadets of the graduating class who were reported to the Adjutant General, U. S. Army, for publication in the "Official Army Register" as having ranked highest in the Military Department:

1889.

A. St. C. Dunstan.
B. H. Crenshaw.
A. J. Burr.

1890.

F. D. Milstead.
J. W. Bivins.
G. W. Emory.

1891.

L. E. Baker.
C. C. Johnson.
F. J. Bivins.

1892.

H. F. Dobbin.
A. L. Jones.
C. L. Brown.

1893.

Joel Dumas.
C. H. Smith.
J. F. Webb.

1894.

C. S. Andrews.
P. P. McKeown.
R. T. Dorsey.

1895.

S. L. Coleman.
H. H. Smith.
L. B. Gammon.

1896.

A. L. Alexander.
W. L. Fleming.
W. M. Williams.

1897.

P. G. Clark.
G. M. Holley.
G. N. Mitcham.

1898.

A. H. Clark.
A. McB. Ransom.
John Haralson.

1899.

I. F. McDonnell.
A. H. Feagin.
T. W. Wert.

1900.

E. M. Mason.
H. P. Powell.
C. W. Nixon.

1901.

A. F. Jackson.
J. D. Foy.
P. S. Haley.

1902.

W. D. Willis.
J. E. D. Yonge.
J. B. Garber.

1903.

H. E. Davis.
H. M. Yonge.
T. J. Dowdell.

REQUIREMENTS FOR ADMISSION.

All applicants for admission should present testimonials of good moral character, and those who come from other colleges must present certificates of honorable discharge.

To enter the Freshman class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography and History of the United States.

2. English—(a) English grammar as contained in any standard text. (b) An examination upon sentences containing incorrect English. (c) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar, and division into paragraphs.

(a) *Reading.* The composition of 1904 will be upon subjects drawn from one or more of the following works in English Literature: (1) Hughes's *Tom Brown at Rugby;* (2) Southey's *Life of Nelson;* (3) Shakespeare's *Julius Caesar;* (4) Longfellow's *Evangeline;* (5) Scott's *Ivanhoe;* (6) Shakespeare's *Merchant of Venice;* (7) Irving's *Sketch Book;* (8) Macaulay's *Essay on Milton;* (9) Scott's *Marmion;* (10) Dickens's *David Copperfield.*

The candidate will be required to present evidence of a general knowledge of the subject matter, and to answer simple questions on the lives of the authors. This part of the examination is intended only to test a general knowledge of the substance of the books.

(b) *Study and Practice.* This part of the examination presupposes the thorough study of the style of the work, and will be upon *Julius Caesar* and the *Essay on Milton.*

Preparation and examination on these works will be necessary before the student is classed as regular in any course.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers; the metric system; percentage, including interest and discount; proportion. (b) Algebra to quadratic equations; especial preparation is urged in *fundamental operations, factoring, multiples, divisors* and *fractions;* two books of geometry.

4. Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Caesar, in addition to the above subjects.

In pronouncing Latin it is recommended that $\bar{a}$ be pronounced as in *father*; $\breve{a}$ as the *a* in *Cuba*; $\bar{e}$ as in *prey*; $\breve{e}$ as in *men*; $\bar{i}$ as in *machine*, $\breve{i}$ as in *cigar*; $\bar{o}$ as in *old*; $\breve{o}$ as in *obey*; $\bar{u}$ as in *rule*; $\breve{u}$ as in *full*; *j* as *y* in *yard*; *c* always as *k* in *king*; *g* always as *g* in *get*.

For admission to the higher classes, students should be prepared to stand satisfactory examination in all of the studies of the lower classes, as shown in the course of study. Students applying for admission to the sophomore class will be examined in mathematics through quadratic equations and logarithms in algebra, and on seven books in geometry. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on these subjects.

It is absolutely essential that students who hope to succeed should be well grounded in arithmetic, algebra, and geometry.

A working knowledge of the metric system should also be obtained.

ADMISSION ON CERTIFICATE.

Applicants will be admitted without examination on presenting a certificate from any of the CERTIFICATE SCHOOLS named herein.

The following educational institutions having made application to be correlated to this College, and having presented an approved course of study, are hereby declared to be CERTIFICATE SCHOOLS, and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the fresh-
" man class *without examination* upon the certificate of the presi-
" dent or principal, showing definitely that such students have
" completed satisfactorily all the studies required for admission, as
" stated in the catalogue, and are otherwise admissible."

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The privilege of admitting students to the Sophomore class on certificate will be granted only to those approved schools that have had a continuous existence for five years or more and have previously had pupils admitted to that class without conditions.

The following form of certificate will be used:

I hereby certify that A..... B..... has attended the (*name the school or academy*) for ..... years, and has studied the following subjects:

in History .....(*name the books*)
in English .....(*name the books*)
in Algebra .....(*state amount accomplished*)
in Geometry .....(*state amount accomplished*)
in Latin .....(*state books read*)
and having passed a satisfactory examination on these subjects as required in the Catalogue for admission to the .....class, he is recommended for the same.

Admission by certificate is regarded as provisional.

That is, though admitted to the class for which the certificate calls, the applicant may be required to take special examination in any subject in which his preparation proves unsatisfactory, or, after a fair trial, he may be dropped to a lower class, if he fails to maintain standing in the class to which he may be admitted.

CERTIFICATE SCHOOLS.

University Military School, Mobile.....J. D. Wright.
Verner Military Institute, Tuscaloosa.....W. H. Verner.
University School, Montgomery.....J. M. Starke.
Mt. Willing High School, Mt. Willing.....J. Knight.
State Normal School, Jacksonville.....C. W. Daugette.
Male Academy, Huntsville .....F. Puryear.
Furman Academy, Livingston .....L. A. Cockrell.
High School, Opelika .....G. W. Brock.
Eighth District Agricultural School, Athens.....M. K. Clements.
Sixth District Agricultural School, Hamilton.....E. F. Cauthen.
Eutaw Male Academy, Eutaw .....H. C. Horton.
Anniston Training School for Boys.....W. A. White.
Taylor's School, Birmingham .....W. P. Taylor.
University High School, Birmingham.... I. J. White, M. B. Dickinson.

Fourth District Agricultural School, Sylacauga.....T. A. Anderson.
Gaylesville High School .....John R. Ray.
Oxford Graded Schools.....John R. Bell.
Carrollton Academy.....L. V. Rosser.
Ninth District Agricultural School, Blountsville.....J. A. B. Lovett.
Gadsden High School .....W. E. Striplin.
Boyd High School, Brundidge.....B. H. Boyd.
Carrollton High School (Ga.).....J. S. Caldwell.
Eufaula High School .....F. L. McCoy.
Union Springs High School .....J. M. Sanders.
Montgomery High School .....C. L. Floyd.
Sycamore Academy .....C. C. Slaton.
Southern Agricultural School, Abbeville.....J. V. Brown.
Barnes's School, Montgomery .....E. R. Barnes.
Jackson Agricultural School.....Douglas Allen.
Spring Lake School .....W. C. Griggs.
Pensacola Classical School .....H. C. Armstrong.
Grady Institute, Ft. Valley, Ga.....W. J. Scroggs.

ADMISSION OF YOUNG WOMEN.

The privilege of becoming students in this College is granted by the Trustees to young women of mature mind and character, on the following conditions:

The applicant must be seventeen years of age, and if a candidate for a degree, be able to pass a satisfactory examination in each of the four subjects named below.

If the applicant is a candidate for admission as a special or irregular student, she must be able to pass a satisfactory examination in two of the subjects named, and may be admitted at an age less than seventeen, with a resident of Auburn acting as guardian, if application is approved by the Faculty.

(a) In English—Proficiency in spelling and punctuation; Grammar (Lockwood-Whitney); Rhetoric (Lockwood's Lessons and Carpenter's Rhetoric); Scudder's Masterpieces of American Literature; Syle's From Milton to Tennyson.

For requirements in reading in literature see page 38.

(b) In History—Macy's Our Government; Chambers's History of the United States; Myers's General History.

(c) In Mathematics—Arithmetic; Algebra, including quadratic equations, logarithms and series; Plane and Solid Geometry; Plane and Spherical Trigonometry, as in Wentworth.

(d) In Latin—Grammar, including the forms and syntax; Jones's Latin Prose Composition; translations of selections from Cæsar, Nepos, Virgil, Cicero's Orations, Cicero's Letters, or the equivalent.

The equivalents of these subjects, as in above text-books, may be substituted.

When admitted, upon complying with the conditions above stated, the applicants may enter upon the study of any subject taught in the College and join any class, for which upon examination, they may be found qualified. The only condition imposed will be that they engage in earnest study, and attend the exercises regularly. They will board in town with private families, and attend college only at the hours of their exercises.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 7th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the freshman class are admitted to the sub-college department, provided they are sixteen years of age, and are found after examination qualified to profit by the instruction given. Those who, after admission, are inattentive to their studies, and neglectful of their duties, will be required to withdraw, but those who are studious and make sufficient progress will be advanced to full admission to the freshman class when they are qualified to pass satisfactorily the required examinations.

Students, upon their arrival at Auburn, will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of electing studies in the lower classes is not granted to young students nor to their parents.

The Faculty will assign a student, on admission, to that class of a prescribed course for which he is qualified, and for special reasons, approved by the Faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age, that are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study for which they may on examination prove themselves qualified.

For an applicant to enter upon the study of Civil, Mining, or Electrical and Mechanical Engineering as a special or irregular student, he must have studied algebra through quadratics and logarithms, plane geometry, and plane trigonometry.

The professor in charge of a department will decide by examination whether a special student is prepared for admission to his class.

A student who does not take all the studies in a class of one of the degree courses, as prescribed in the catalogue, and is permitted to take an irregular course, will be assigned to a member of the Faculty, who will act as his special adviser, and when his course of study has been approved by the Faculty, no other change will be permitted without the endorsement of his adviser.

Regular students who fail to pass satisfactory final examinations in any one study become irregular students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students, candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

ADMISSION TO HIGHER CLASSES.

At the beginning of each term a student in the sub-freshman class may, on application approved by the Faculty, be examined for admission to the freshman class in history, English, mathematics, and be admitted to the freshman class in those subjects in which he passes a satisfactory examination.

Students who have completed satisfactorily all the studies of the sophomore class, as prescribed in the catalogue, in any one of the regular degree courses, can enter, without condition, the junior class in any course, except in the general course, or the course in pharmacy, in which Latin is required.

Students who are admitted to the junior class from other institutions, on examinations in English, Latin, and mathematics, and who have not completed all the studies of the sophomore class, in order to graduate, will be required to complete the course in chemistry and history as taught in the sophomore class. In addition to these subjects, students who thus enter the junior class of the course in chemistry and agriculture, either from this or other institutions, will be required to complete the course in botany and physiology in the sophomore class.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical, and Natural Sciences, with their applications; Agriculture; Biology; Mechanics, Astronomy, Mathematics; Drawing; Civil, Electrical, Mechanical, and Mining Engineering; Physiology and Veterinary Science, Pharmacy; English, French, German, and Latin Languages; History, Political Economy; Mental and Moral Sciences.

The studies are arranged in regular courses so as to offer liberal and practical education as a preparation for the active pursuits of life.

There are seven degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. Sc.) and requiring four years for its completion.

I. COURSE IN CHEMISTRY AND AGRICULTURE.

II. COURSE IN CIVIL ENGINEERING.

III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

IV. COURSE IN MINING ENGINEERING.

V. GENERAL COURSE.

VI. COURSE IN PHARMACY.

VII. COURSE IN CHEMISTRY AND METALLURGY.

There are also three partial courses, each requiring two years for its completion:

VIII. TWO-YEAR COURSE IN AGRICULTURE.

IX. TWO-YEAR COURSE IN MECHANIC ARTS.

X. TWO-YEAR AND THREE-YEAR COURSES IN PHARMACY.

Course I. includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture or chemical pursuits.

Course II. includes the principles and applications of sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course III. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged for the profession of electrical and mechanical engineering.

Course IV. includes theoretical and practical instruction in geology, mineralogy, chemistry, civil and electrical engineering, as applied to mines; mapping, exploration; boring; ventilation; timbering, and all the operations pertaining to the profession of mining engineering.

Course V. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching or in some commercial or professional business.

Course VI. includes, besides the general education of course IV. in the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course VII. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in the scientific branches relating thereto. Students taking this course also pursue the study of German or French during the Junior and Senior years, and are thus prepared to utilize for reference the scientific journals and works published in those languages.

Courses VIII. IX. and X. have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, will be awarded a certificate of proficiency in said subject.

Students who complete either of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

A student who completes the work of the three-year course in pharmacy and submits a satisfactory thesis will be granted a certificate as Pharmaceutical Chemist.

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every candidate for a degree will be required to stand this special examination during the second term of the Senior year.

Declamations and themes or orations are required of all regular students pursuing courses leading to a degree.

POST-GRADUATE COURSES.

A more extended post-graduate curse of study may be taken by a graduate of this College or of any other institution of equal grade. The completion of a course which leads to a post-graduate degree of Master of Science requires one year's residence at the College, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the Faculty.

The candidate must also present to the Faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination, at the close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the Faculty.

The subject of the thesis must be submitted to the Faculty for approval prior to January 1st, and the thesis given to the professor by May 1st.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the same general regulations as other students, and pay the same fees, but are exempt from all military duty.

The following courses are prescribed for the degree named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the Faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and Chemistry.

3. *Master of Science in Civil Engineering.*—Civil Engineering, mathematics, and analytical mechanics.

4. *Master of Science in Electrical and Mechanical Engineering.*—Electrical Engineering, Mechanical Engineering.

5. *Master of Science in Mining Engineering.*—Students who have received the degree of B. Sc. in engineering, mining, civil, or electrical and mechanical, or in the course of chemistry and metallurgy, or who have prosecuted an equivalent course of study, can enter upon a special course of mining engineering, which includes the following subjects of study:

Industrial Chemistry, Analytic Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, with practical work in the field, Mining Machinery, with the application of steam and electricity to the various operations connected with the exploitation of mines.

The student, if a candidate for a degree, will also be required to prosecute the necessary studies in that course of engineering in which he has not graduated. This course of study will be under the charge of the professors in the different engineering departments, the professor of Chemistry, and the professor of Mining Engineering and Geology.

Special Students in Post-Senior Studies.—Students who are not graduates, but are qualified in special subjects to prosecute post-senior studies, and desire to prepare themselves more thoroughly for professional or special work in any one of the departments of engineering, in chemistry or pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the Faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given the same year.

PROFESSIONAL DEGREES.

The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer or Mining Engineer, will be given four years after receiving the degree of Master of Science, provided two years of the intervening time have been spent in a responsible position in practical engineering work in that department in which the degree of Master of Science was received, and an approved thesis is submitted to the Faculty, with a report of the character of the work done. Uuder the same regulations the professional degrees enumerated above may be given eight years after receiving the degree of Bachelor of Science, provided four years have been spent in practical work in the department in which one receives this degree.

SPECIAL ONE-YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of scientific agriculture.

LABORATORY INSTRUCTION.

NOTE—Special work in English or History may be taken by students in the general course as a substitute for laboratory work.

Laboratory instruction constitutes an important feature in the course of education provided for the students of this institute, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CHEMISTRY.

II. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.

III. AGRICULTURE.

IV. BOTANY.

V. MINERALOGY.

VI. BIOLOGY.

VII. TECHNICAL DRAWING.

VIII. MECHANIC ARTS.

XI. PHYSICS.

X. ELECTRICAL ENGINEERING.

XI. MECHANICAL ENGINEERING.

XII. MINING ENGINEERING, MAPPING, FIELD WORK, ETC.

XIII. PHYSIOLOGY AND VETERINARY SCIENCE.

XIV. PHARMACY.

XV. HORTICULTURE.

I. COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Botany.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
2. Physiology.	2. Physiology.	2. Physiology.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	3. Military Drill.
3. Military Drill.	3. Military Drill.	4. Agricultural Lab'y.
4. Agricultural Lab'y.	4. Agricultural Lab'y.	4. Botanical Lab'y.
		2. Horticultural Lab'y.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English (a).	3. English (a).	3. English (a).
3. Physics.	3. Physics.	3. Physics.
2. Agricultural Chem.	2. Agricultural Chem.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	3. Horticulture.
2. Botany.	2. Botany.	2. Botany.
1. Military Tactics.	3. Horticulture.	1. Military Tactics.
2. Veterinary Science.	1. Military Tactics.	2. Veterinary Science.
3. Clinical Lab'y.	2. Veterinary Science.	3. Clinical Lab'y.
6. Chemical Lab'y.	3. Clinical Lab'y.	6. Chemical Lab'y.
2. Botanical Lab'y.	6. Chemical Lab'y.	2. Botanical Lab'y.
2. Agricultural Lab'y.	2. Botanical Lab'y.	4. Horticultural Lab'y.
3. Military Drill.	4. Horticultural Lab'y.	3. Military Drill.
	2. Agricultural Lab'y.	
	3. Military Drill.	

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Econ. (b).	2. Political Economy.
2. Mental Science (c).	2. Mental Science (c).	2. Mental Science (c).
2. Physics.	2. Physics.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.

2. Botany.	2. Botany.	2. Botany.
2. Agriculture.	2. Agriculture.	2. Agriculture.
1. Military Science.	1. Military Science.	1. Military Science.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
3. Clinical Lab'y.	3. Clinical Lab'y.	3. Clinical Lab'y.
4. Botanical Lab'y.	4. Botanical Lab'y.	4. Botanical Lab'y.
2. Agric. Lab'y. (1, 2).	2. Agric. Lab'y. (1, 2).	

(a) French or German may be substituted.

(b) Begins Feb. 15th. (c) German or French may be substituted.

II. COURSE IN CIVIL ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. History.	3. History.	3. Elem't'y. Mechanics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Agriculture (b).	2. Agriculture (b).	2. Agriculture (b).
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing (a).
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y. Mechanic Arts (c).	6. Lab'y. Mechanic Arts (c).	6. Lab'y. Mechanic Arts (c).
1. Field Work, Engineering.	1. Field Work, Engineering.	1. Field Work, Engineering.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature, (d).	2. Political Economy, (d).	2. Political Economy, (d).
2. Physics.	2. Physics.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Civil Engineering.	5. Civil Engineering.	5. Civil Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
4. Mech. Eng. Lab'y. Field Work, Engineering.	4. Mech. Eng. Lab'y. Field Work, Engineering.	4. Mech. Eng. Lab'y. Field Work, Engineering.

(a) Perspective Drawing, or Mechanical Drawing.

(b) Physical Laboratory may be substituted.

(c) Or Mineralogy.

(d) French or German may be substituted.

III. COURSE IN ELECTRICAL AND MECHANICAL ENGINEERING.

In Freshman and Sophomore classes the same studies are prescribed as in Course II in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
4. Electrical Engineering.	4. Electrical Engineering.	4. Electrical Engineering.
3. Mechanical Engineering.	3. Mechanical Engineering.	3. Mechanical Engineering.
4. Mechanical Drawing.	4. Mechanical Drawing.	4. Mechanical Drawing.
4. Electrical Lab'y.	4. Electrical Lab'y.	4. Electrical Lab'y.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature, (a).	2. Political Economy, (a).	2. Political Economy, (a).
2. Physics.	2. Physics.	2. Astronomy.
2. Materials of Machines	2. Indicator Practice.	2. Pumping Machinery.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Electrical Engineering.	5. Electrical Engineering.	5. Electrical Engineering.

5. Mechanical Engineering.	5. Mechanical Engineering.	5. Mechanical Engineering.
2. Electrical Designing.	2. Electrical Designing.	2. Electrical Designing.
6. Electrical Lab'y.	6. Electrical Lab'y.	6. Electrical Lab'y.
4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.	4. Mech. Eng. Lab'y.
1. Military Science	1. Military Science.	1. Military Science.

(a) French or German may be substituted.

IV. COURSE IN MINING ENGINEERING.

In Freshman and Sophomore classes the same studies are prescribed as in Course II. in Civil Engineering.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	2. Astronomy.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Mining Engineering.	5. Mining Engineering.	5. Mining Engineering.
3. Drawing.	5. Drawing.	5. Drawing.
2. Mineralogy.	4. Lab'y. Mineralogy.	4. Lab'y. Mineralogy.
4. Lab'y. Mineralogy.	6. Machine Shop.	6. Machine Shop.
6. Machine Shop.	3. Field Work.	3. Field Work.
3. Field Work.	1. Military Tactics.	1. Military Tactics.
1. Military Tactics.	3. Military Drill.	3. Military Drill.
3. Military Drill.		

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature, (a).	2. Political Economy, (a).	2. Political Economy, (a).
2. Physics.	2. Physics.	2. Physics.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. Mining Engineering.	3. Mining Engineering.	3. Mining Engineering.
2. Electrical Engineering.	2. Electrical Engineering.	2. Metallurgy.
2. Metallurgy.	2. Metallurgy.	3. Drawing.
3. Drawing.	3. Drawing.	1. Military Science.
1. Military Science.	1. Military Science.	8. Chem. Lab'y. and Assaying.
8. Chem. Lab'y. and Assaying.	8. Chem. Lab'y. and Assaying.	3. Field Work.
3. Field Work.	3. Field Work.	

(a) French or German may be substituted.

V. CHEMISTRY AND METALLURGY.

The numerals opposite the subjects indicate the number of hours per week. In the Freshman and Sophomore classes the same studies are prescribed as in either Course I. in Agriculture and Chemistry, or in Course V. in General Course.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
4. Industrial Chemistry.	4. Industrial Chemistry.	4. Industrial Chemistry.
2. Organic Chemistry.	2. Organic Chemistry.	2. Organic Chemistry.
4.*Mineralogy (Lab'y).	4. Mineralogy (Lab'y.)	4. Mineralogy (Lab'y.)
2. Descrip. Mineralogy.	2. Economic Geology.	3. Economic Geology.
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Lab'y.	9. Chemical Lab'y.	9. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Physics.	2. Physics.	2. Astronomy.
3. German or French.	3. German or French.	3. German or French.
2. Geology.	2. Geology.	2. Geology.
3. Metallurgy and Engineering Chem.	3. Metallurgy and Engineering Chem.	3. Metallurgy and Engineering Chem.
2. Analytical Chemistry.	2. Analytical Chemistry.	2. Analytical Chemistry.
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Lab'y. and Assaying.	9. Chemical Lab'y. and Assaying.	9. Chemical Lab'y. and Assaying.
3. Metallurgical Designing.	3. Metallurgical Designing.	3. Metallurgical Designing.

*Mechanic Art Lab'y. may be substituted.

VI. GENERAL COURSE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
4. Latin.	4. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Drawing.	3. Drawing.	2. Agriculture.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	3. Drawing.
3. Military Drill.	3. Military Drill.	6. Mechanic Art Lab'y.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany or Elementary Mechanics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y. or 4. Botanical Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
3. Latin.	3. Latin.	3. Latin.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Lab'y. Work (a).	6. Lab'y. Work (a).	6. Lab'y. Work (a).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English.	2. Political Economy.	2. Political Economy.
2. Mental Science.	2. Mental Science.	2. Mental Science.
2. Physics.	2. Physics.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science.	1. Military Science.
6. Lab'y. Work (a).	6. Lab'y. Work (a).	6. Lab'y. Work (a).

(a) The student may elect the laboratory of any department for which he may be qualified.

VII. COURSE IN PHARMACY.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	3. History.
4. Latin.	4. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	5. Mathematics.

3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Art Lab'y.
		3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
3. History.	3. History.	3. Botany.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Physiology.	2. Physiology.	2. Physiology.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mecnanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
2. Chemical Lab'y.	2. Chemical Lab'y.	or 4. Botanical Lab'y.
3. Military Drill.	3. Military Drill.	2. Chemical Lab'y.
		3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. Physics.	3. Physics.	3. Physics.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Chemical Lab'y.
4. Botany.	4. Botany.	4. Botany.
3. English (a).	3. English (a).	3. English (a).
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
9. Pharmaceutical Lab'y.	9. Pharmaceutical Lab'y.	9. Pharmaceutical Lab'y.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. Bacteriology.	3. Bacteriology.	3. Materia Medica.
3. Bacteriology Lab'y.	3. Bacteriology Lab'y.	3. Urinalysis.
6. Chemical Lab'y.	6. Chemical Lab'y.	7. Toxicology.
2. Organic Chemistry.	2. Organic Chemistry.	2. Organic Chemistry.
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
15. Pharmaceutical Lab'y.	15. Pharmaceutical Lab'y.	15. Pharmaceutical Lab'y.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
1. Military Science.	1. Military Science.	1. Military Science.

(a) French or German may be substituted.

VIII. TWO-YEAR COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	3. History.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	3. Drawing.	3. Drawing.
12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

IX. TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. Physiology.	2. Physiology.	2. Physiology.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
4. Practical Agriculture.	4. Practical Agriculture.	2. Horticulture.
3. Clinical Lab'y.	3. Clinical Lab'y.	4. Practical Agriculture.
		3. Clinical Lab'y.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. Botany.
4. Agriculture.	4. Agriculture.	4. Agriculture.
4. Practical Agriculture.	4. Practical Agriculture.	2. Practical Agriculture.
3. Chemistry.	3. Chemistry.	3. Chemistry.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
2. Veterinary Science.	2. Veterinary Science.	2. Veterinary Science.
3. Clinical Lab'y.	3. Clinical Lab'y.	3. Clinical Lab'y.
2. Horticulture.	2. Horticulture.	4. Horticulture.
2. Botany.	2. Botany.	2. Botany.
4. Botanical Lab'y.	4. Botanical Lab'y.	4. Botanical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

X. TWO-YEAR COURSE IN PHARMACY.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
2. Chemical Lab'y.	2. Chemical Lab'y.	2. Chemical Lab'y.
3. English.	3. English.	3. Botany.
2. Physiology.	2. Physiology.	2. Physiology.
3. Pharmacy.	3. Pharmacy.	3. Pharmacy.
4. Pharmacognosy.	4. Pharmacognosy.	4. Pharmacognosy.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	4. Botanical Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
5. Pharmacy.	5. Pharmacy.	5. Pharmacy.
5. Pharmacognosy.	5. Pharmacognosy.	5. Pharmacognosy.
15. Pharmaceutical Lab'y.	15. Pharmaceutical Lab'y.	15. Pharmaceutical Lab'y.
6. Chemical Lab'y.	6. Chemical Lab'y.	6. Toxicology.
6. Bacteriology.	6. Bacteriology.	3. Materia Medica.
4. Botany.	4. Botany.	4. Botany.
3. Military Drill.	3. Military Drill.	3. Military Drill.

XI. THREE-YEAR COURSE IN PHARMACY.

First Term.	*Second Term.*	*Third Term.*
20. Pharmaceutical Chemistry and Lab'y.	20. Pharmaceutical Chemistry and Lab'y.	20. Pharmaceutical Chemistry and Lab'y.
15. Chemistry and Chemical Lab'y.	15. Chemistry and Chemical Lab'y.	15. Chemistry and Chemical Lab'y.
3. Bacteriological Laby.	3. Bacteriological Laby.	3. Bacteriological Laby.

SCHEDULE OF EXERCISES.

HOURS	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
I.	4. Algebra. 3. Latin. 2. Pharmacy. 2. Mech. Engineer'g. 2. Horticult. Lab'y. 1 and 2. Drawing.	4. Geometry. 3. Agriculture. 3. Latin. 2. Mineralogy. 2. German. 2. Botany. 1 and 2. Drawing.	4. Algebra. 3. Latin. 2. Pharmacy. 2. Vet. Science. 2. Mech. Engineer'g. 1. Botany. 1 and 2. Drawing.	4. Geometry. 3. Latin. 2. German. 2. Botany. 2. Mech. Engineer'g. 2. Mineralogy. 1 and 2. Drawing.	4. Algebra. 3. Latin. 2. Pharmacy. 2. Veterinary Sci. 1 and 2. Drawing. 1. Elec. Engineer'g. 1. German.	Exercises in Elocution.
8–9	1. Elec. Engineer'g. 1. Botany. 1. German. 1. Bacteriology.	1. Elec. Engineer'g.	1. Elec. Engineer'g. 1. German.	1. Elec. Engineer'g.		
II.	4. English. 3. Chemistry. 2. Civ. Engineer'g. 2. Elec. Engineer'g. 2. Mining Engineer'g.	4. History. 3. Physiology. 2. Civ. Engineer'g. 2. Elec. Engineer'g. 2. Mining Engineer'g.	4. English. 3. Chemistry. 2. Civil Engineer'g. 2. Elec. Engineer'g. 2. Mining Engineer'g.	4. History. 3. Agriculture. 2. Civil Engineer'g. 2. Botany. 2. Elec. Engineer'g. 2. Mining Engineer'g.	4. English. 3. Chemistry. 2. Civil Engineer'g. 2. Latin. 2. Mech. Drawing. 2. Mining Engineer'g.	Military Drill.
9–10	2. Latin. 2. Horticulture (2-3). 1. Calculus. 1. Botany (Lab'y.) 1. Bacteriology.	2. Botanical Lab'y. 1. Chemistry. 1. French. 1. Agriculture.	2. Latin. 2. Horticulture (2-3) 1. Calculus. 1. Pharmacognosy. 1. Botany.	1. Chemistry. 1. French. 1. Veterinary Sci.	2. Horticulture (2-3). 1. Calculus. 1. Veterinary Sci.	
III.	3. English. 2. Physics. 1. Civil Engineer'g. 1. Botany (Lab'y.) 1. Latin.	1. Mental Science. 4. English. 3. Botany (Lab. 3.) 3. History (1, 2.) 2. French.	3. English. 2. Physics. 1. Latin. 1. Civil Engineer'g. 1. Mech. Engineer'g.	1. Mental Science. 4. English. 3. History (1, 2.) 3. Botany (3.) 2. French.	3. English. 2. Physics. 1. Civil Engineer'g. 1. Pharmacognosy. 4. History (3.)	Mechanic Arts. Chemical Lab'y. Electrical Lab'y. Physical Lab'y. Veterinary Clinics. Field Civil and Mining Engineering.
10–11	1. Mech. Engineer'g. 1. Bacteriology. 1. Mining Engineer'g. 4. Agriculture (3.)	2. Mech. Drawing. 2. Botany. 1. Elec. Engineer'g. (m.) 1. Machine Design. 1. Pharmacognosy. 1. Civil Engineer'g. 1. Mech. Engineer'g.	1. Mining Engineer'g 4. Agriculture (3.)	2. Botany. 1. Civil Engineer'g. 1. Elec. Engineer'g. (m.) 1. Mech. Engineer'g. 1. Machine Design. 1. Pharmacognosy. 2. Practical Mach'y.	1. Mech. Engineer'g.	
IV.	4. Agriculture (3.) 4. Physics (1-2.) 4. Mechanic Arts. 4. Latin (1, 2.) 3. Drawing.	4. Latin. 3. Drawing. 2. Horticulture. 2. Mathematics. 2. Chemistry Org.	4. Physics (1, 2.) 4. Latin (1, 2.) 4. Mechanic Arts. 3. History (1, 2.) 3. Botany (3.)	4. Latin. 3. Physiology. 2. Horticulture. 2. Mathematics. 2. Chemistry Org.	4. Physics (1, 2.) 4. Mechanic Arts. 4. Latin. 3. Drawing. 2. Mathematics.	1. Pharmaceutical Lab'y. 3. Mechanic Arts. Chemical Lab'y. Electrical Lab'y. Physical Lab'y. Veterinary Clinics. Field Civil and Mining Engineering.
11–12	2. Mathematics. 2. Chemistry. 2. Pharmacognosy. 1. English (1, 2.) 1. Pol. Econ. (2, 3.)	2. Pharmacognosy. 1. Physics.	2. Mathematics. 2. Chemistry. 2. Pharmacognosy. 1. English (1, 2.) 1. Pol. Econ. (2, 3.) 4. Agriculture (3.)	1. Physics.	2. Chemistry. 2. Pharmacognosy. 1. Military Science.	
V.	4. Drawing. 4. Mechanic Arts. 3. Mathematics. 2. English. 1. Elec. Designing.	3. Mathematics. 2. English. 1. Geology. 1. Pharmacy. 1. Mech. Engineer'g.	4. Drawing. 4. Mechanic Arts. 3. Mathematics. 2. German. 2. Anal. Chemistry.	3. Mathematics. 2. English. 1. Geology. 1. Pharmacy. 1. Mech. Engineer'g.	4. Drawing. 4. Mechanic Arts. 3. Mathematics. 2. Military Tactics. 1. Elec. Designing.	3. Mechanic Arts. Chemical Lab'y. Electrical Lab'y. Physical Lab'y. Veterinary Clinics. Field Civil and Mining Engineering.
12–1	1. Agriculture. 1. French. 1. Pharmacy. 1. Eng. Chem. and Metallurgy.		1. Pharmacy. 1. Eng. Chem. and Metallurgy. 1. Elec. Designing.		1. Pharmacy.	
P. M.	4. Mechanic Arts. 3. Field Work. Agr. 3. Botanical Lab. (3.) 1 and 2. Lab. Chem.	3. Mechanic Arts. 3. Botanical Lab. (3.) 2. Mineralogical Lab. 2. Agriculture (1, 2.)	4. Mechanic Arts. 3. Field Work, Agri. 3. Botanical Lab. (3.) 1 and 2. Lab'y. Chem.	3. Mechanic Arts. 3. Botanical Lab. (3.) 2. Mineralogical Lab.	4. Mechanic Arts. 3. Horticulture (3.) 2. French. 1 and 2. Lab. Chem.	
2–4	1 and 2. Field Work, Engineering. 1 and 2. Mach. Work. 1 and 2. Elec. Lab'y. Work. Physical Lab'y. 1. Mech. Lab'y.	Military Drill (*). Elec. Lab'y. Work. 1 and 2. History.	1 and 2. Field Work, Engineering. 1 and 2. Mach. Work. Exercises in Eloc't'n. Elec. Lab'y. Work. Physical Lab'y. 1. Mech. Lab'y.	Military Drill (*). Elec. Lab'y. Work. 1 and 2. History. 1. Agriculture (1, 2.)	1 and 2. Field Work, Engineering. 1 and 2. Mach. Work. Exercises in Eloc't'n. Elec. Lab'y. Work. Physical Lab'y. 1. Mech. Lab'y.	

Chapel services daily at 7:45 a. m. *From 4:30 to 5:30 p. m. (m.) Mining Engineering.

Numbers prefixed denote classes—1 denotes senior; 2, junior, etc. Numbers affixed—(1), (2), (3), denote terms.

DEPARTMENTS OF INSTRUCTION

ENGLISH AND POLITICAL ECONOMY.

PRESIDENT THACH.

PROFESSOR WIATT.

INSTRUCTOR WEBB.

ASSISTANT SCROGGS.

ASSISTANT DOWDELL.

OBJECTS AND METHODS.

In this department the students pursue a systematic course in the English language and literature.

Language is the avenue of approach to all knowledge; the interpretation of words is the fundamental process in education of whatsoever kind. A full course in English is, therefore, considered especially important in the technical courses of study that do not include the ancient classics. Accordingly, the course in English is continued throughout the four years of the college curriculum, three hours a week, and is made obligatory upon all students, with the exception of those pursuing the first two years of the course in Latin. In this extended drill in the grammar and literature of the English language, the endeavor is made to afford a training somewhat equivalent to the ordinary course in the classical languages.

In view of the ill preparation in languages, especially in their mother tongue, exhibited by many of the candidates for admission to the freshman class, it is deemed advisable, for the sake of honest work, to devote a portion of the first year to grounding such students in the principles of grammar.

Especial attention is given to the study of the writings themselves of leading American and British authors, since direct contact with literature is considered more profitable than information merely *about* literature.

All students before classed as regular in any course leading to a degree must conform to all the requirements in English for admission as set forth on page 38.

For requirements as to thesis and as to proficiency in English for certificates and degrees, see pages 46 and 108.

Declamations and themes (or orations) are required of *all regular* students. For details see below.

COURSES OF STUDY.

Freshman Class—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied; study of American authors; Irving, Hawthorne, Holmes, Poe, Bryant, Longfellow.

Swinton's English Grammar, Lockwood & Emerson's Rhetoric, Kellogg & Reed's English Language.

Sophomore Class—Three hours a week; study of style, analysis of selections of prose and poetry; frequent essays on historic and literary themes.

Rhetoric, Genung's Rhetorical Analysis, Syle's From Milton to Tennyson.

Junior Class—Three hours a week; lectures on the history of English literature, critical study of English classics, essays.

Pancoast's History of English Literature; Pancoast's Standard English Poems, Macaulay, Carlyle, DeQuincey, etc.

Senior Class—Two hours a week, first term. Principles of Criticism, Shakespeare's Julius Cæsar, Hamlet, etc. Dowden's Shakespeare, etc.

THEMES AND ORATIONS.

Theory without practice is as fruitless in the study of English as in any other department of study. Practical work is indispensable to the successful teaching of English.

Besides numerous brief papers illustrative of the subject matter of the text-books, set themes or orations are *required of all students;* For the freshman class *ten* themes a year; *ten* for the sophomore; for the senior and junior classes, *three* orations each.

DECLAMATION.

The old practice of committing pieces to memory for "speaking" is cultivated as a means, both of training in the art of thinking on the feet, and of storing the mind with the diction of finished specimens of English style.

The sophomore class is heard weekly throughout the year in sections of ten, once for an hour and a half in rehearsal, afterwards in the study-hall before the body of students.

The senior and junior classes also deliver their orations in public.

PHILOSOPHY AND POLITICAL ECONOMY.

The senior class pursue the study of intellectual science, twice a week, through the year; and political economy twice a week, during the last two terms. The instruction in this department is by lectures in combination with text-books.

Intellectual Science—**Psychology defined. Value in relation to moral culture, education and Natural Sciences. The relation of the soul to matter. The arguments of the Materialist. Counter arguments. The Faculties of the Soul. The nature of Consciousness. Sense Perception. Fancy. Imagination. Nature of Conceptions. Language. Judgment. Reasoning. Deduction. Induction, etc.** *Porter's Intellectual Science.*

Political Economy—**Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades-union; tariff; education, etc.** *Lectures by Professor. Ely's Outlines of Economics.*

A Post-graduate course **has also been established in English. The following courses have been given:**

(1) *Shakespeare*—**Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV., Part I., Richard III., King John.**

(2) *Dryden—Poetical Works* **(Christie);** *Essay on Dramatic Poesy* **(Thomas Arnold);** *Essay on Satire, etc.,* **(Yonge); Saintsbury's** *Life of Dryden.*

Pope—Poetical Works **(Ward);** *Satires* **(Pattison); Stephen's** *Life of Pope;* **Gosse's** *From Shakespeare to Pope* **and** *18th Century Literature.*

(3) *English Literature of the Eighteenth Century;* **Addison, Pope, Gray, Goldsmith, Burns, Cowper, Burke.**

(4) *American Literature*: Longfellow, Lowell, Poe.

(5) *The Rise and Development of the English Essay*: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(6) *Milton—Poetical Works* (Masson); Life, Pattison, Brooke.

MATHEMATICS.

PROFESSOR SMITH.

ASSOCIATE PROFESSOR CRENSHAW.

INSTRUCTOR PATRICK.

ASSISTANT HILL.

The subjects taught in the different classes in this department are as follows:

FRESHMAN CLASS. Algebra through quadratic equations and series, geometry (seven books Wentworth), original solutions of exercises.

SOPHOMORE CLASS. Spherical geometry, plane and spherical trigonometry, triangulation, surveying, mensuration.

JUNIOR CLASS. Analytical geometry, descriptive geometry, differential calculus.

SENIOR CLASS. Differential and integral calculus.

Two objects are sought to be obtained: First, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given to the sophomore class in land surveying, mapping, plotting and computing areas, etc., also in the theory, adjustment and use of instruments, and triangulation.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

The completion of this course, common to all students, lays the foundation for the pure and applied mathematics of the mechanical and engineering courses. Analytical geometry, descriptive geometry, and calculus are pursued in the engineering courses. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of principles and formulas.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Wentworth's Trigonometry, Wentworth's Surveying, Wentworth's Analytical Geometry, Faunce's Descriptive Geometry, Taylor's Calculus, Johnson's Differential Equations, Osborne's Problems, Peck's Determinants.

CIVIL ENGINEERING AND DRAWING.

PROFESSOR LANE.

ASSISTANT MORGAN.

The special studies in this department begin in the junior class, and require a good knowledge of algebra, geometry, trigonometry, and analytical mechanics. They are as follows:

Junior Class—Simple, compound, reversed and parabolical curves, turnouts and crossings, leveling, gradients, setting slope stakes, etc.

Special attention is paid in this class to the location, construction, drainage and maintenance of country roads; and the various pavements and foundations for the same.

Senior Class—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought iron, steel and other metals; limes, cements, mortars and their manufacture; paints and other preservatives; classification of strains and a general mathematical discussion of same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds, their construction and strains determined mathematically and graphically; common roads, their coverings, location and construction of railroads; navigable, irrigation and drainage canals; rivers and sea-coast improvements.

Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior Class—Henck's Field Book for Railway Engineers, and Byrne's Highway Construction.

Senior Class—Wheeler's Civil Engineering and Von Ott's Graphic Statics.

DRAWING.

All of the students of the freshman and sophomore classes are required to take drawing; but only the students in civil engineering in the junior and senior classes.

The freshman class is taught linear drawing. The sophomore class is instructed in the principles of orthographic and isometric projections, shades, shadows, perspective and tinting. In the junior class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and tinting; also sketches of tools and machines, plans and elevations and cross-sections of buildings, and blue prints. The senior class makes topographical drawings, and drawings of machines, roofs, bridges, etc., to different scales, and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

Freshman Class.—Kitchener's Geometrical Note Book, Davidson's Linear Drawing, and Davidson's Model Drawing.

Sophomore Class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior Class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, Keuffel & Esser's Alphabet.

Senior Class.—French, English and American plates belonging to the College, Keuffel & Esser's Alphabet.

HISTORY AND LATIN.

PROFESSOR PETRIE.

ASSISTANT DAVIS.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library.

In the freshman class, the subjects studied are the United States, Alabama, and England. The first term (two hours per week) is devoted to the history and government of the United States; the second term (two hours per week) to Alabama, and the third term (three hours per week) to the history of England.

In the sophomore class (three hours per week until March) the subject studied is general European history.

HISTORICAL LABORATORY.

In the junior and senior classes opportunity for special work in United States history is given those students of the General Course who elect it as laboratory work, and to any others who are properly qualified. The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation and every incentive is given to the collection and use of new documents, papers and letters illustrative of Southern, and especially Alabama history.

The method of work is as follows: Informal lectures are given on important and suggestive points, as: The cause of the Revolution; the Constitutional Convention; the War of 1812; the Missouri Compromise; the Monroe Doctrine; Texas and Mexico; the Compromise of 1850; the Kansas Struggle; the Dred Scott Decision; Secession. After each lecture topics connected with it are assigned to the students with an outline of the points to be investigated. They report their results to the class and a discussion follows. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion.

Graduate students are expected to take part in the junior and senior discussions and in addition will meet with the professor for conference in regard to their work. Those who take history as their major subject are expected to devote a large part of their time to original research upon some topic on which they can consult the original sources of information. They are also required to pursue a prescribed course of reading as indicated below:

TEXT-BOOKS.

Freshman Class.—Hart's Formation of the Union; Wilson's Division and Reunion; Brown's History of Alabama; Montgomery's English History.

Sophomore Class.—Myers's General History.

Junior and Senior Classes.—Moore's American Congress.

Graduate Course.—Wilson's History of the American People, Fiske's Critical Period, Burgess's Middle Period, Burgess's Reconstruction and the Constitution.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced,



CHEMICAL LABORATORY (INTERIOR.)

sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

In the Freshman and Sophomore classes the study of the language is the chief point. In the higher classes a broader view is taken. The Junior class makes a special study of Roman history and Roman historians. The Senior class studies Roman poetry and Roman life.

TEXT-BOOKS.

Freshman Class.—Allen & Greenough's Grammar, Exercises, Nepos, Sallust or equivalent, Cicero.

Sophomore Class.—Cicero, Allen & Greenough's Grammar, Bennett's Latin Composition, Guerber's Mythology.

Junior Class.—Livy, Tacitus, Allen & Greenough's Grammar, Exercises, Botsford's History of Rome.

Senior Class.—Horace, Plautus, Preston & Dodge's Private Life of Romans, Latin Literature, Allen & Greenough's Latin Grammar.

CHEMISTRY.

PROFESSOR ROSS.

ASSISTANT PROFESSOR HARE.

ASSISTANT RANSOM.

ASSISTANT PATERSON.

Instruction in this department embraces—

1. A course of lectures in general chemistry.
2. A course of lectures in industrial and engineering chemistry.
3. A course of lectures in organic chemistry.
4. A course of lectures in metallurgy.
5. A course of lectures in agricultural chemistry.
6. Systematic laboratory work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in general chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cooke's Chemical Philosophy, Chemical Journals.

2. Lectures in industrial chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams.

A course of lectures (two hours per week) on engineering chemistry is given during the last half of the senior year, especial attention being given to the study of the construction and equipment of chemical plants devoted to the manufacture of the more important chemical products. The study of textile chemistry will also be included in this series of lectures.

Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operation of the leading industries.

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology; Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Sadtler's Industrial Organic Chemistry.

3. Course in organic chemistry: Instruction in this subject embraces lectures and recitations (two hours per week) throughout the junior year, upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the methods of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations.

TEXT AND REFERENCE BOOKS.

Remsen's **Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.**

4. Course in metallurgy: This consists of lectures and recitations (two per week, during the first half of the senior year) upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved.

5. Course in agricultural chemistry: This consists of lectures on chemistry in its application to agriculture (two per week, during second and third terms), and includes a thorough discussion of the origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist.

REFERENCE BOOKS.

Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

6. The course of systematic laboratory work: This course of practical work in the laboratory is carried on in connection with each course of lectures. In the junior year the work embraces the practical operations of chemical synthesis and analysis and includes the preparation of the non-metallic elements and their most important compounds, in addition to a systematic study of the metals and their compounds, their separation and identification. In the senior year students pursue work in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc., the courses of work being varied somewhat to suit the individual object of the student.

In the course of Pharmacy, instruction in Toxicology and Toxical Analysis is given during the last term of the senior year.

All students during the sophomore year are required to take two hours per week of practical laboratory work, instruction being given in the simplest methods of chemical manipulation.

The laboratories, which are open from 9 A. M. to 5 P. M., during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common re-agents and apparatus used in qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed, will be deducted from his contingent fee.

In addition to the laboratory work above described it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

TEXT-BOOKS.

In qualitative analysis—Jones, Sellers, Fresenius, Plattner.

In quantitative analysis—Fresenius, Cairns, Sutton, Rose, Blair's Analysis of Iron and Steel, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying, Stillman's Engineering Chemistry, Lord's Metallurgical Analysis.

In agricultural chemical analysis—Official methods of the Association of Agricultural Chemists, Wiley's Principles and Practice of Agricultural Analysis.

CHEMICAL LABORATORY.

[For description of building see page 16.]

The chemical apparatus recently purchased for the laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, eight short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

PHYSICS.

PROFESSOR SOUTHALL.

The complete course of Physics extends over four years, and is designed to give, as far as possible, an adequate and correct idea of the methods of Physical Science, and to lay the foundation for subsequent more advanced work if (as must often be the case, especially in an institution such as this) the student desires to pursue the subject further or intends to engage in any of the great engineering professions of which Physics is so important a basis. The lectures are illustrated by experiments; the students are required to work numerous problems and exercises; recitations are held each week.

FRESHMAN COURSE.

This course is very elementary, and continues only during the first and second terms. The object in view is to make the student familiar with the fundamental principles of Physics. The class meets three times a week. (The text-book will be announced later.)

SOPHOMORE COURSE.

This is a laboratory course, and deemed especially important for students of engineering, and of great advantage to such as intend to pursue the subsequent higher work in this department. The laboratory exercises are carefully selected, being designed to illustrate the fundamental methods and principles of Physics, and, although the work is necessarily more or less elementary, at the same time such accuracy and precision as the conditions admit of are insisted upon, so that the student is expected to acquire a fairly correct idea of modern experimental investigation. The exercises consist of the fundamental measurements of Length, Mass, Density, moduluses of Elasticity, pendulum experiments, etc., together with a few more advanced experiments in connection with the similar properties of Liquids and Gases, and the general phenomena of Heat and Sound. The student is required to write a careful report of such experiments, entering the results of observation in tabular form, and plotting a curve wherever practicable; also describing the object, apparatus, and method, and noting sources of errors, etc. Great stress is laid upon this requirement, and reports are not accepted unless they indicate that the student has done his best in every way. Four hours per week throughout entire year. (Text-book will be announced later.)

JUNIOR COURSE.

Lectures and recitations three hours a week throughout entire session. This is a more advanced course in general physics required of all candidates for a degree. The only preparation needed is a good working knowledge of mathematics through plane trigonometry. The course includes a series of illustrated lectures on the principles of Dynamics, as applied to Solids, Liquids, and Gases, Sound, and Heat, in the order named. Written exercises are required each week. (Text-book to be announced later.)

SENIOR COURSE.

Lectures and recitations two hours a week throughout the entire session. This course, although more advanced than the Junior course, and occasionally employing the higher Mathematics, is a continuation of the work of the previous year. It might be called a course in Elementary Mathematical Physics, and the subjects, varying from year to year, that are treated in the lectures are such branches of Physics as Kinematics and Dynamics, Thermodynamics, Electricity and Magnetism, Geometrical and Physical Optics, etc. The student is encouraged to solve difficulties for himself, and to read the standard treatises and original memoirs on the various topics that come under discussion.

The last term of the session will generally be devoted to a brief course of lectures in *Descriptive Astronomy.*

The text-books in this class vary with the changing subjects, and will be announced by the professor each year.

GRADUATE COURSE.

This course will be designed to meet the needs of the students who take it. It will include both theoretical and experimental work in more advanced Mathematical Physics, or in Analytical Mechanics.

MODERN LANGUAGES.

PROFESSOR WIATT.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

The following regular courses are given in French and German:

French—First Year: Three recitations a week. During this year the principal object is to acquire a knowledge of the elements of grammar and a correct pronunciation, together with a facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year almost the same line of work is pursued as that begun the previous year. More difficult and varied French is read, and instruction is given upon the laws of grammar, the construction of the language, and the history of the literature. Special attention is given to sight translation.

German—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

The students in this department will meet the professor twice a week, from 4 to 5 p. m. during the *first term,* and the *third term,* for exercises in conversation in French and German.

TEXT-BOOKS.

FRENCH—*First Year*: Edgren's Grammar and Locard's Supplementary Exercises. Super's Reader.

***Second Year*: Feuillet's Le Roman d'un Jeune Homme Pauvre, Racine's Esther, Corneille's Le Menteur, Moliere's Le Bourgeois Gentilhomme, selected plays, Whitney's Grammar, original exercises.**

GERMAN—*First Year*: Joynes-Meissner's Grammar and Reader.

***Second Year*: Der Bibliothekar, Wilhelm Tell, Whitney's Grammar and Exercises, selected plays, original exercises.**

GRADUATE COURSE.

This course is offered for the benefit of those students who wish to pursue the study of these subjects beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.



ELECTRICAL BUILDING.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.

ASSISTANT PIERCE.

JUNIOR YEAR.

First Term: Four hours per week are devoted to the study of the principles of electricity and magnetism, with special reference to their industrial application. The subject of electrical measurements is also treated in detail.

Second Term: Incandescent lighting, four hours per week.

Third Term: Arc lighting and wiring, four hours per week.

TEXT-BOOKS.

S. P. Thompson's Electricity, Crocker's Electric Lighting, and Cushing's Standard Wiring.

Instruction is given by lectures and recitations.

LABORATORY WORK.

Four hours per week are devoted to work in the laboratory. This includes management of batteries, electrical measurements, adjustments and testing of arc lamps, and a considerable amount of wiring and some electrical construction.

SENIOR YEAR.

First Term: Dynamo electric machinery, five hours per week.

Second Term: Alternating currents and alternating current machinery.

Third Term: Polyphase machinery and power transmission, five hours per week.

TEXT-BOOKS.

Dynamo Electric Machinery, Thompson; Alternating Currents, Franklin and Williams; Standard Polyphase Apparatus, Oudin; Electrical Problems, Hooper and Wells.

LABORATORY WORK.

Six hours per week during the senior year are devoted to practical work in the dynamo laboratory. This work includes the study and testing of various types of dynamos and motors, the determination of various constants, dynamo and motor efficiencies, transformer testing and the general management and installation of electrical machinery.

ELECTRICAL DESIGNING.

During the first term each senior student is required to design and prepare the necessary drawings for the construction of a direct current dynamo or motor, and during the third term the design of an alternator is completed.

APPLICATION OF ELECTRICITY TO MINING.

Two hours per week for two terms of the senior year a course of recitations and lectures on electricity with especial reference to its use in mining is given to students taking the course in Mining Engineering. Sufficient laboratory and other practical work in testing and the study of generators, motors, etc., is given to thoroughly familiarize the student with electrical machinery of various kinds.

POST-GRADUATE COURSE.

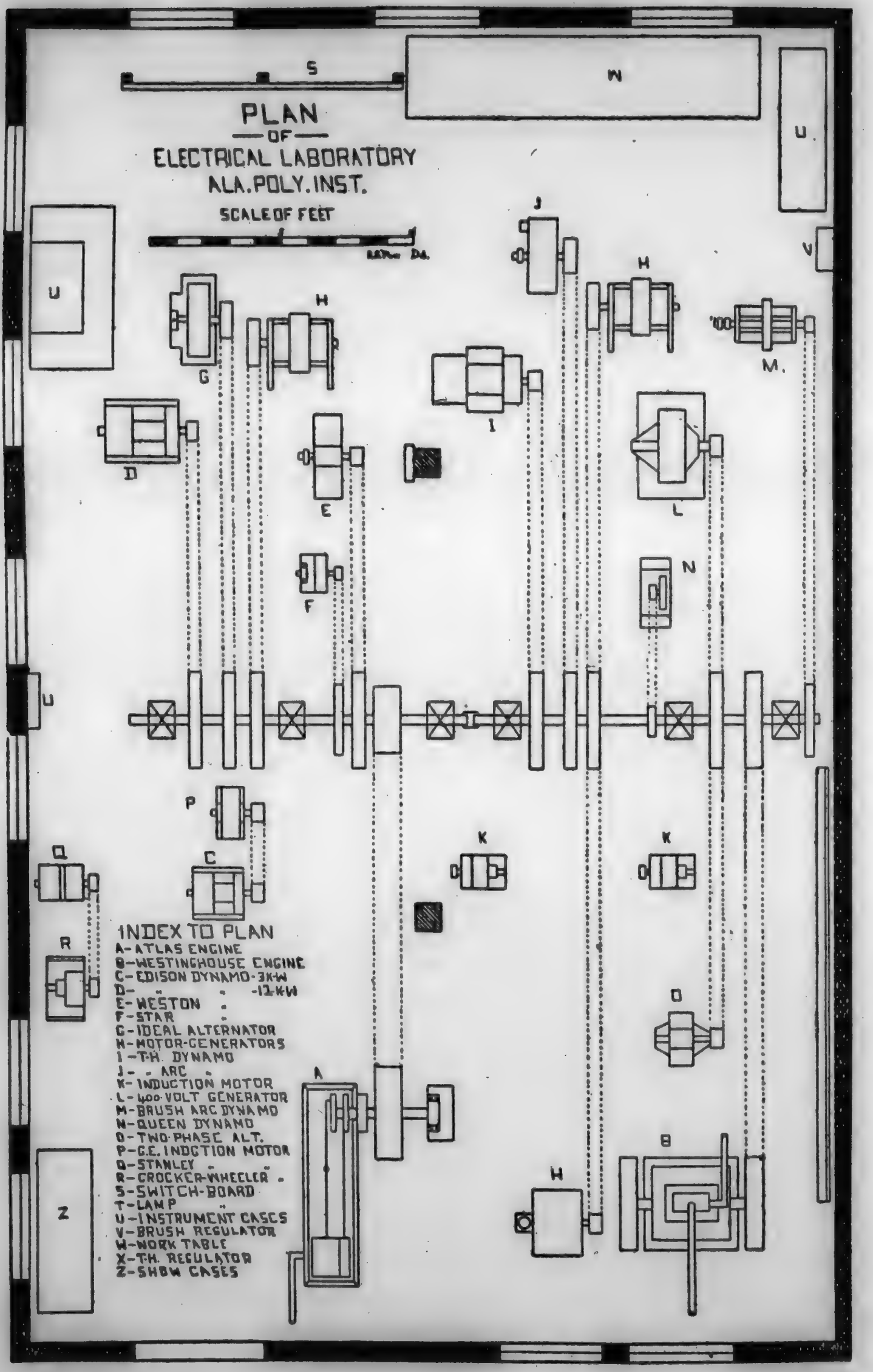
To graduate students more advanced courses of instruction are offered, these courses being varied from year to year to meet the needs of those taking them.

During the present session the courses given have been: Engineering Contracts and Specifications (one term). A study of the Law of Contracts, General and Technical Clauses in Specifications, Examination and criticism of sets of Specifications for the Construction of various railway and light plants.

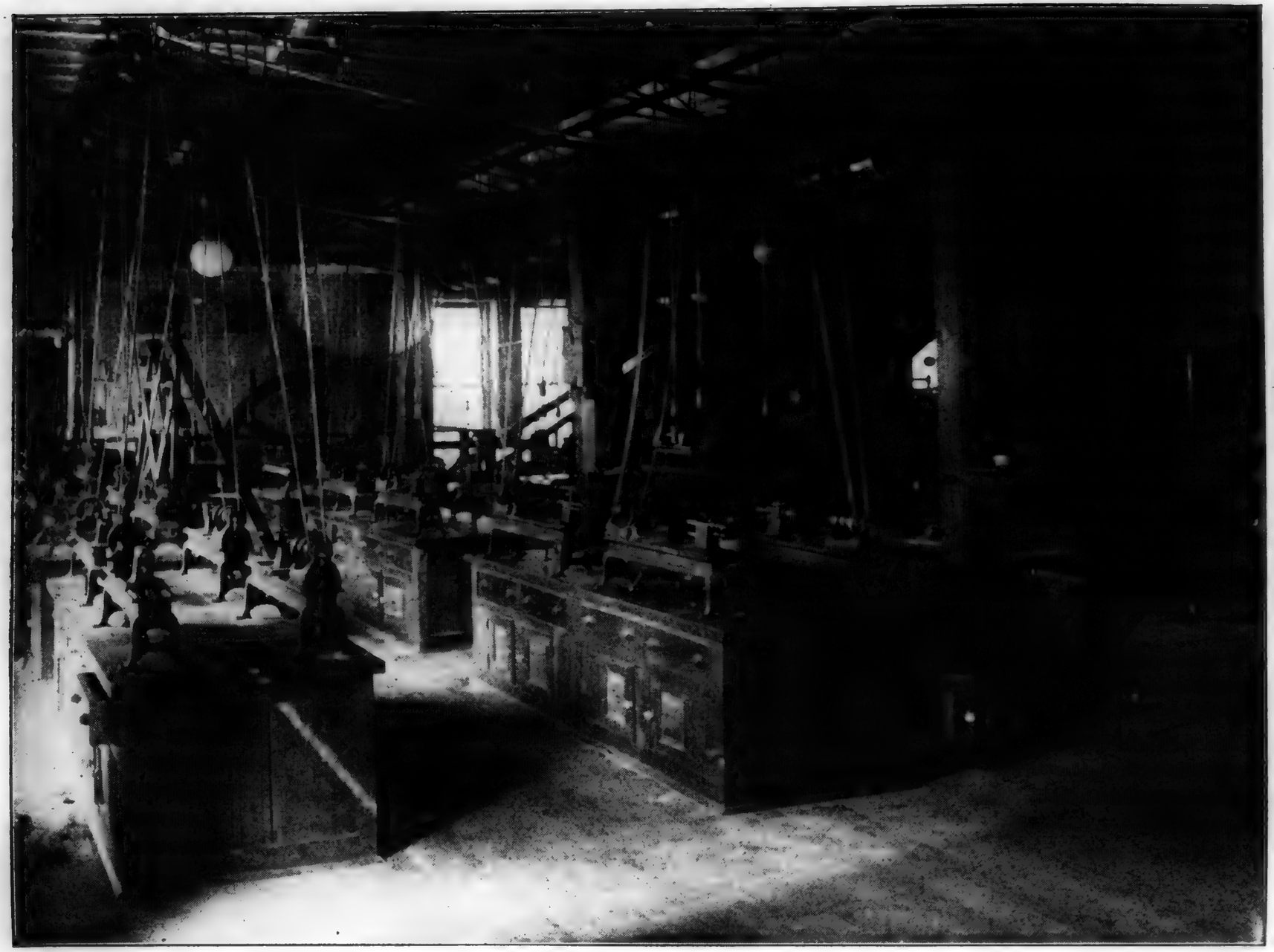
Induction Motors (two terms.) A general theoretical and experimental study of various types of induction motors, the calculation of performance, diagrams from construction data of several motors, and the design of several types of induction motors.

Encouragement is offered to advanced students for conducting original investigations and an opportunity is taken to stimulate a spirit of scientific enquiry. Courses of reading are suggested to such students in connection with their experimental work.

The rapid extension of the lighting and power service gives unusual opportunities for practical work in wiring and the installation of electrical machinery. Most of this work is done by students, and great benefit is derived by them from it.


PLAN
OF
ELECTRICAL LABORATORY
ALA. POLY. INST.
SCALE OF FEET
INDEX TO PLAN
A-ATLAS ENGINE
B-WESTINGHOUSE ENGINE
C-EDISON DYNAMO-3K-W
D- " " -12-K-W
E-WESTON "
F-STAR "
G-IDEAL ALTERNATOR
H-MOTOR-GENERATORS
I-T-H. DYNAMO
J- " ARC "
K-INDUCTION MOTOR
L-400-VOLT GENERATOR
M-BRUSH ARC DYNAMO
N-QUEEN DYNAMO
O-TWO-PHASE ALT.
P-G.E. INDCTION MOTOR
Q-STANLEY " "
R-CROCKER-WHEELER "
S-SWITCH-BOARD
T-LAMP "
U-INSTRUMENT CASES
V-BRUSH REGULATOR
W-WORK TABLE
X-T-H. REGULATOR
Z-SHOW CASES





WOOD ROOM.

MECHANICAL ENGINEERING AND MECHANIC ARTS.

PROFESSOR WILMORE.

ASSISTANT PROFESSOR FULLAN.

INSTRUCTOR HILL.

INSTRUCTOR STOKES.

ASSISTANT CULVER.

The course in shop work covers three years, as follows: First year, wood working in carpentery and turning. Second year, blacksmith work, pattern making and foundry work. Third year, chipping, filing and machine work in metals. The work of each class is six hours per week, in three exercises of two hours each, and all students in the sub-freshman, freshman, and sophomore classes are expected to take the work unless excused, for satisfactory reasons, by the Faculty. Machine shop work is required of all juniors in the course of Electrical and Mechanical Engineering, is optional with students in the course of Civil Engineering, and is offered to special students who are prepared to take it.

The equipment available for carrying on this work is enumerated on page 11 of this catalogue. The nature of the work in each department is as follows:

FIRST YEAR.

I. A course in carpentry or hand work covering the first two terms. The lessons include instruction in the nature and use of tools, instruction and practice in shop drawing, elementary work with the plane, saw, chisel, different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet work, and examples in framing roof trusses. Students who make sufficient progress in their work are allowed to make a flat top office desk. Upon the payment of the bare cost of the materials, the student is allowed to take the desk to his home. This has been found to increase the interest of the student in the work, and serves as a valuable object lesson in having a considerable amount of actual construction work going on in the shop.

WOOD ROOM.

II. A course in turning extending through the third term. The lessons comprise the nature and use of the lathe and tools, plain straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plate and chuck work, hollow and spherical turning.

SECOND YEAR.

I. A course in forge work in iron and steel, occupying the first term. The lessons are so arranged that the students in making them become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool forging, tempering and hardening.

II. A course in turning extending through the third term. The work includes a variety of examples of whole and split patterns, with suitable core boxes, giving the students familiarity with the use of patterns for general molding.

III. A course in molding and casting in iron and brass occupying the third term. The work for the most part consists of small articles, such as light machine parts and the stock pieces used for the exercise work in the machine shop. A sufficient variety is introduced for the student to acquire a good general knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks, but core work and some more complicated molds are made to illustrate the processes.

The same patterns which have been previously made by the students are used. For the heavier and more complicated castings, special patterns are made. Instruction is given in operating the cupola, and from time to time during the year lectures are given on the metallurgy and working of the metals used in the industrial arts.

THIRD YEAR.

I. A course of chipping and filing, covering the first term. The lessons comprise work on cast and wrought iron: chipping to line on flat and curved surfaces, key seating, filing and finishing to line, surface filing, fitting, slotting, pin and screw filing, and surface finishing with scraper.

II. Machine work occupies the remainder of the year. The work includes steel, brass, and cast and wrought iron. Exercises are given

in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring, screw cutting in lathe and with taps and dies. Practice is given in working the planer, shaper and milling machine. In the last part of the year some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction work or repair work for the department is always on the shop floor, and students who are well advanced with their work have opportunity to gain additional practice and experience by assisting with this.

All work is done from blue prints and blackboard sketches. For the preliminary exercise work, special instruction sheets are prepared and given out to the student with the stock for the exercise. These sheets explain in detail each step in the process of producing the exercise, and are intended to supplement the individual instruction of the instructor. In the construction work it is the purpose to select some simple machine and build two or more of them on the interchangeable system. Jigs and templates are designed and built to accomplish this result as far as possible. A system of time keeping is in force in the shop. At the end of the week, each student makes out his time card, describing the work he has done during the week and giving the number of hours spent on each job.

MECHANICAL ENGINEERING.

JUNIOR YEAR.

Kinematics of Machinery.—Three recitations per week during the first term are devoted to this subject. Under this head machines are analyzed and their elementary combinations of mechanism studied. The communication of motion by gear wheels, belts, cams, screws, and link work, the different ways of obtaining definite velocity ratio and definite changes of velocity, parallel motions and quick return motion, as well as the designing of trains of mechanism for various purposes, together with the theoretical forms of teeth for gear wheels to transmit the motion through these trains, are investigated under this subject.

Elementary Mechanics.—Three hours per week for the second term are devoted to this subject. Under it the fundamen-

tal laws of mechanical science are studied, with special attention to their practical applications to engineering work.

Mechanical Engineering of Power Plants.—The third term, three hours per week, is given to the study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages and disadvantages of each discussed. Extensive files of manufacturers' catalogues are kept and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work.

Practical Mechanics.—One hour per week during the year is given to recitations and lectures on machine shop work. The construction, use and limitations of the various machine tools, the forms of cutting tools and methods of grinding them, the form and use of jigs and gauges, are studied, together with instruction in machine shop management, time and cost of keeping.

Mechanical Drawing.—Four hours a week during the year are devoted to drawing. During the first part of the year instruction is given in the conventional methods of representing standard materials, and in the design of fastenings and machine parts. Later on scale drawings of simple machines are made from dimensional sketches which each student makes for himself from the actual machine. Free hand lettering, tracing, and blue printing receive attention, and all the instruction is intended to familiarize the student with modern drawing office methods.

Laboratory Work.—The laboratory work of the junior year is that described under the third year of the course in Mechanic Arts.

TEXT-BOOKS.

Barr's Kinematics of Machinery, Wood's Elementary Mechanics, Rose's Practical Machinist, and Reid's Elementary Machine Design.

Mechanical Engineering of Power Plants.—The first term, five hours per week, is given to a continuation of the junior class work under the same head. The text-book work will be supplemented by lectures on the structure and form of steam boilers, best methods of setting and handling them and preventing undue wear and tear. Lectures on some of the kinematical features of the steam engine, together with a study of valve gears, will be offered as part of the course.

Materials of Machines.—The first term, two hours per week, is devoted to this subject. Special attention is given to the manufacture of iron and steel, and to the strength of these metals under various conditions. The crude materials which go into the blast furnace and the by-products which come out also receive attention.

Thermodynamics.—The second and third terms, five hours per week, are given to this subject. It is first studied from the ideal standpoint, and later the applications are made to hot air engines, gas and gasoline engines, and steam engines, and also to air compressors and refrigerating machines. Graphical methods are used in preference to mathematical ones when they can be made to serve the purpose equally well, as it is believed that a more concrete conception can be presented to the mind of a student by a diagram than by a formula.

Indicator Practice.—The second term, two hours per week, will be given to a study of the indicator and its uses as applied to steam engines, gas engines, air compressors, and refrigerating machines. Particular attention is given to the interpretation of the diagrams and to the methods of working them up.

Pumps and Pumping Machinery.—The third term, two hours per week, will be given to the study of steam and power pumps as applied to boiler feeding, water works and irrigation purposes. The instruction will be given by lectures for the most part, and the standard types, together with the conditions under which each type will give the most satisfactory service, are studied.

Machine Design.—The subject of machine design is made a continuation of the junior course and runs throughout the year, two hours a week. The general plan of the work fol-

lows the text-book used, and such additional exercises are given as are found desirable. The strength and proportion of joints, fastenings, and machine details, are studied. Problems are given, the dimensions worked out and the drawings made under the direction and criticism of the instructor. It is the purpose of the course, as far as time will permit, to prepare students for practical drawing room work.

Laboratory Work.—The students are not only taught how to calibrate and use the different instruments, but they are brought in contact with engineering appliances under practical working conditions. Thoroughness of work is sought rather than the performance of a large number of experiments.

The following course has been arranged:

Calibration of steam gauge; calibration of indicator spring; calibration of thermometer; calibration of scales; calorimeter tests with separating and throttling calorimeters; boiler test; efficiency test of engine with brake and indicator power measurement; test of hot air pumping engine; test of gasoline engine; efficiency and duty test of steam pump; transverse, compressional, and tensional tests of cast iron, wrought iron, steel and wood, in which are observed the limit of elasticity, the ultimate breaking strength, and the modulus of elasticity.

TEXT-BOOKS.

Hutton's Mechanical Engineering of Power Plants, Smith's Materials of Machines, Hutton's Heat and Heat Engines, Peabody's Manual of the Steam Engine Indicator, Reid's Machine Design.

POST GRADUATE COURSE.

Considerable latitude is allowed in the selection of post graduate work, and the course is arranged each year to suit the requirements of the class. One of the following lines of work is recommended: Hydraulics, Thermodynamics, or Power Plant Engineering. The course selected is accompanied by suitable laboratory work.

GEOLOGY AND MINING ENGINEERING.

PROFESSOR MITCHAM.

General Geology.—This subject is studied in the senior class by students pursuing courses in Chemistry and Agriculture, Chemistry and Metallurgy, Civil Engineering, Mining Engineering and the General Course, and extends through the entire session. The subject begins with an introductory course in the study of the rock-forming minerals and Petrology, after which Dynamical, Structural, Physiographical and Historical Geology are taken up and studied in the order named. Special attention is given to the Geology of Alabama and the lectures and recitations are supplemented by laboratory instruction and geological excursions. Text-book, Scott's Introduction to Geology.

Mineralogy.—The students of the junior class in Mining Engineering devote two hours a week during the first term to the study of Crystallography. The junior classes in Civil and Mining Engineering, Chemistry and Metallurgy, devote four hours a week throughout the entire session, to the study of Determinative Mineralogy. The work consists of laboratory instruction in blowpiping, measuring crystals, and determining the physical properties of minerals. An effort is made to familiarize the student with the economically important ores and rock-forming minerals so that he can identify them by sight or, by applying a few simple tests in the field. Text-books; Moses & Pearson's Mineralogy and Crosby's Tables.

Mining Engineering.—The special studies in this subject begin with the first term in the junior class, and require a thorough knowledge of Algebra, Geometry and Trigonometry. Special students who have not completed these subjects cannot pursue this course satisfactorily. The work begins with higher Surveying, and is introduced by a course of lectures on the construction, theory, use and care of the various instruments used by Engineers and Surveyors in surveying, leveling and mapping. Following this, instruction is given in the theory and practice of traverse and triangulation surveys of extended areas, topographical surveying by the various methods, hydrographic surveying, gauging of streams, calculation of flow of

water in open channels, pipes and conduits, levelling with barometer, differential, sections and cross section levelling with spirit level, establishing grades and calculation of quantities. Special attention is given to mine surveying and mapping. The work in surveying occupies five hours a week during the first and second terms and is concluded by a short course in railway surveying. Text-books, Johnson's Surveying and Field Book. During the third term five hours a week is devoted to Economic Geology. The origin, occurrence and distribution of the various economically important ores, minerals, and building stones are studied, special attention beging given to the mineral deposits of Alabama and the Southern Appalachians.

The senior class takes up the study of mining proper, the subjects of exploration, boring, modes of approaching minerals, sinking, opening out, methods of working of various kinds of ore deposits, theory and practice of ventilation, safety lamps, gases, blasting, power drills, coal-cutting machinery, timbering, haulage, transmission of power, hoisting operations and hoisting plants. Mine drainage, ore dressing, colliery screens, coal-washing plants, coke ovens, precautions for safety and mine administration are studied in detail. The senior class devotes three hours per week throughout the session to the subject. Text-book: Lupton's Mining. Coal and Metal Miner's Pocket-book. Both junior and senior classes devote three hours a week to field work.

Drawing.—Both junior and senior classes pursue a course in drawing throughout the session, and are taught to make drawings, tracings and blue-prints, of various mining machinery and appliances, topographical maps, geological maps and sections, profiles, and working drawings of coke ovens, tipples and various mining structures. An effort is also made to have the student acquire a neat, practical system of lettering for working drawings and maps. Text-books: Rheinhardt's Technic of Mechanical Drafting, Rheinhardt's Lettering.



MINERALOGICAL LABORATORY.

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AGRICULTURE.

PROFESSOR DUGGAR.

INSTRUCTOR BEW.

ASSISSTANT MITCHELL.

Five terms are devoted to soils, crops and other portions of the subject of general agriculture and four terms to animal industry.

Instruction in agriculture is given by means of lectures, textbooks, bulletins of the agricultural experiment stations, and practical work in field, barn and dairy.

The study of agriculture begins with the freshman class in the third term, and occupies three terms of the sophomore year, two terms of the junior year, and will hereafter extend through three terms of the senior year.

The time devoted to this study in the lecture room is two hours per week with each class, in addition to two or four hours of laboratory work per week in barn, field, dairy or library.

The subjects studied by the freshman class are the breeds of horses, cattle, sheep and hogs—their characteristics, uses, management and adaptability to the South.

The first term of the sophomore year is devoted to dairying, which is taught by practical work in the dairy—butter making, cheese making, determination of fat in milk by the Babcock method, etc.,—as well as by instruction in the lecture room.

In the second term of the sophomore year the following subjects are studied: Soils—chemical and physical properties, defects, and means of improvement; characteristics of the principal soils of Alabama and the special adaptability of each to particular crops; terracing; objects and methods of preparation and cultivation of the soil; fertilizers; and the renovation of poor soils. Practical work in judging the principal breeds of beef and dairy cattle, hogs, and sheep occupies four hours per week throughout the term.

During the third term the student studies the grasses, leguminous, and other forage plants adapted to the different soils of this State. Instruction in the choice of suitable plants, recognition of the most important forage plants and of their seeds, preparation of meadows and pastures, and principles and prac-

tice of hay-making, is both by lectures and by field work and observation of experiments.

In the junior year the topics of the first term are the staple crops of the South, including cotton, corn, oats, wheat, tobacco and rice. The more important crops are treated with reference to varieties, soil and fertilizer requirements, methods of planting and cultivation and uses. Plant breeding, with the special aim of effecting improvement in existing varieties of cotton, corn and cowpeas, by means of systematic selection and crossing, will be taught both in the lecture room and in the field. Students make observations and notes on and assist in harvesting the large collections of varieties of cotton, corn, cowpeas, etc., grown on the Experiment Station Farm.

During the second term the topic is the feeding of animals and the compounding of rations.

The seniors will hereafter study during the first term drainage, irrigation, farm implements and farm buildings; during the second term the principles of animal breeding; and during the third term farm management, including different systems of farming and stock growing, rotation of crops, care of farm manures, choice and methods of applying commercial fertilizers for different soils and crops; markets and results of experiments.

As far as limited time allows, attention is directed to agricultural literature now accumulating so rapidly in this and in foreign countries, to the end that in future years the student may know where and how to seek the information that he may need.

Applicants for post-graduate work in agriculture will be assigned special research work and aided in the line of investigation deemed best for each individual student.

FACILITIES FOR INSTRUCTION.

Students who take the agricultural course have the benefit of the numerous field and feeding experiments continually in progress on the Experiment Station Farm. The dairy building is equipped for work in making butter and cheese on a small scale and for testing milk.

The specimens of live stock brought together for the special purpose of students' use in the study of breeds and in practice

in judging animals consist of representatives of Angus, Shorthorn, Red Polled, and Jersey cattle; Berkshire and Poland China hogs; and Dorset, Southdown, Shropshire, common and graded sheep. Important additions to the live stock are planned.

TEXT AND REFERENCE BOOKS.

Horses, Cattle, Sheep and Swine, by Curtis; The Study of Breeds, by Shaw; Sheep, by Wrightson; The Domestic Sheep, by Stewart; Milk and Its Products, by Wing; Milk Testing, by Farrington & Woll; Soils and Crops on the Farm, Morrow & Hunt; Forage Plants, by Shaw; Soiling Crops and the Silo, by Shaw; The Fertility of the Soil, by Roberts; Corn Culture, by Plumb; Irrigation and Drainage, by King; Irrigation Farming, by Wilcox; Physics of Agriculture, by King; Manures and the Principles of Manuring, by Aikman; Drainage for Profit and Health, by Waring; Agriculture in Some of Its Relations with Chemistry, by Storer; The Feeding of Animals, by Jordan; Feeds and Feeding, by Henry; Animal Breeding, by Shaw; Hand-book of Experiment Station Work; and selected publications of the various divisions of the U. S. Department of Agriculture, and of the Agricultural Experiment Stations.

TWO YEAR COURSE IN AGRICULTURE.

All persons interested in agriculture are advised to take the full four-year course,, which besides offering a well rounded general education, should fit them for farming or stock raising, or for special work in agricultural journalism, or for positions in the experiment stations and colleges and in the National Department of Agriculture.

However, those who are able to spend only two years at college may take the two-year course in agriculture and thus devote practically all of their time to agriculture and the closely related branches of study. In the two-year course the studies are so arranged that the nine courses in general agriculture and animal industry, together with work in other departments of applied science, may be completed during two sessions.

BOTANY.

PROFESSOR WILCOX.

ASSISTANT BURKE.

1. ELEMENTARY BOTANY. This course offers a general introduction to the science of botany and is therefore a prerequisite of all other courses in botany. The general principles of morphology and classification will be developed from the standpoint of physiology and ecology. In the laboratory the student will become acquainted with the general morphology and physiology of the spermatophytes and of some of the most important facts of ecology.

LECTURES AND RECITATIONS. Three hours per week during the spring term of the sophomore year.

LABORATORY WORK. Four hours per week.

2. GENERAL MORPHOLOGY. This course will be devoted to the study in the laboratory of carefully selected representatives of the principal groups of plants. The lectures and recitations will supplement the laboratory work and fill up such gaps in the student's knowledge as are incident to the study of isolated types. In all cases where possible special attention will be devoted to plants of economic importance, in either agriculture or medicine.

LECTURES AND RECITATIONS. Two hours per week during the fall and winter terms.

LABORATORY WORK. Four hours per week for students in the long and short course in pharmacy, but only two hours for other students.

3. COMPARATIVE ANATOMY OF THE SPERMATOPHYTES. A thorough study of the structure and activities of the plant cell will be followed by an examination of the typical tissues with special reference to their function. Students are required to become acquainted with the general methods of botanical microtechnique, including the killing, fixing, imbedding, sectioning, staining, mounting and drawing of all the tissues examined. Students in pharmacy will devote special attention to the study of the structure of plants employed in medicine while



LABORATORY OF BOTANY.

other students will give more attention to those matters that will be of the greatest value to them in the subsequent courses in the subject.

LECTURES AND RECITATIONS. Two hours per week during the spring term.

LABORATORY WORK. Four hours per week for students in the pharmacy courses, but only two hours for other students.

4. PHYTOPHYSIOLOGY. This is a course of carefully selected experiments, to be performed by each student, supplemented by selected readings, conferences and lectures upon certain subjects. It will be the aim of this course to develop a good, general knowledge of the most important functions of seed-plants, such as absorption, photosynthetic assimilation of carbon-dioxide, transpiration, respiration, etc.

LECTURES AND RECITATIONS. Two hours per week during the fall and winter terms of the senior year.

LABORATORY WORK. Four hours per week.

5. PHYTOPATHOLOGY. The aim of this course is to present a broad and comprehensive view of the subject. A thorough study will be made of the principal diseases due to parasitic fungi, but not to the exclusion of diseases produced by unfavorable surroundings and various inorganic factors.

LECTURES AND RECITATIONS. Two hours per week during the spring term of the senior year.

LABORATORY WORK. Four hours per week.

6. BOTANICAL SEMINAR. It is expected that meetings will be held twice per month at which the results of the latest researches in various languages will be presented and informally discussed. The seminar will be open to all juniors, seniors and post graduates taking work in this department and the meetings will be held at some time convenient to all who wish to take part.

7. RESEARCH AND THESIS WORK.—The following lines of work are open to the students during this year:

(1) Comparative embryology of spermatophytes.

(2) Ecology and ecological anatomy.

(3) Physiology and morphogenesis.

(4) Advanced plant physiology.

(5) Advanced cytology.

(6) Forestry or plant culture.

(7) Plant breeding or biometry.

It is expected that seniors who do their thesis work in this department will select a subject in one of these groups, and that the result of the research will be presented as a thesis for publication.

PHYSIOLOGY AND VETERINARY SCIENCE.

PROFESSOR CARY.

ASSISTANT THORNTON.

The sophomore class studies human anatomy, physiology and hygiene during the entire college year.

It is the aim of the department to give the students practical and real knowledge of the gross anatomy and functions of the various parts of the human body. Due attention is given, also, to the laws of health—the conditions most favorable to a continuous healthy action of the organs of the human body.

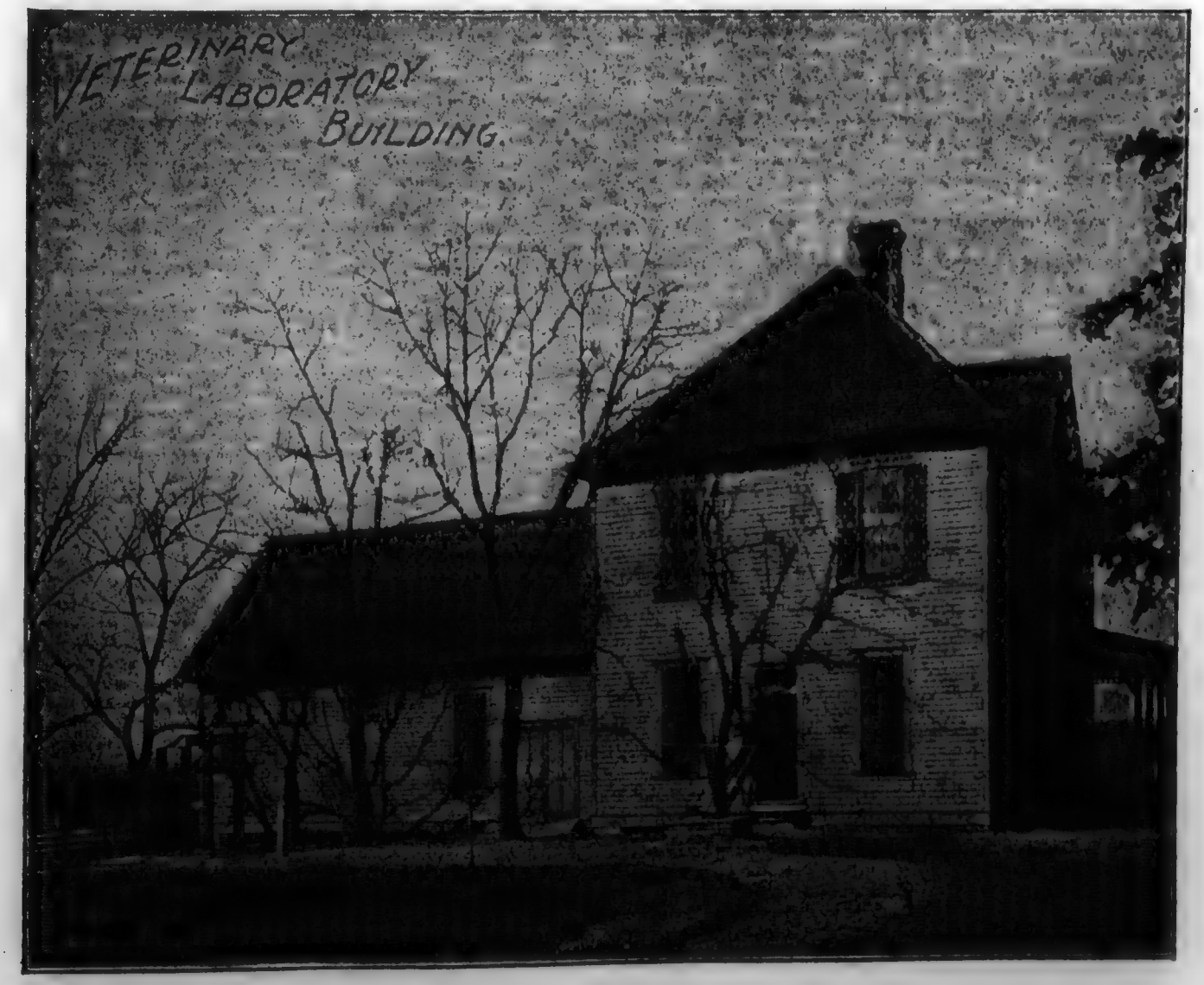
Instruction is given by lectures and by text-books supplemented by blackboard drawings, charts, models of organs, a human skeleton, and by dissections of some of the smaller animals (dog, cat, etc.)

Huxley's Physiology is used as a text and reference book, and several other books on anatomy, physiology and hygiene may be consulted in the college library.

VETERINARY SCIENCE AND ART.

Students in the agricultural and chemical course of study, during the entire junior and senior years, devote to this work two hours per week in the class room and three hours per week at practical clinics. Instruction in veterinary science and art is given by lectures.

The lectures are arranged with special reference to the students who are interested in horses or other domestic animals; also to those students who contemplate studying human or veterinary medicine. While it is not the aim to give a complete course in veterinary medicine, we attempt to present the general principles of comparative medicine with such special applications as are adapted to the conditions and wants of the students.



Special attention is given to the exterior anatomy of the horse, while comparative anatomy is presented mainly in connection with the study of the diseases of the different apparatus of the horse or other domestic animals.

Special students in this department study comparative anatomy and have practical dissection from 6 to 15 hours per week during the entire year.

Lameness in the horse, minor surgery, the actions and uses of the most common medicines, the principles and practices of comparative medicines, and the ways of protecting the health of domestic animals, are considered in as plain and practical a manner as the time allotted to each subject will permit. Post-mortem examination and the dissection of domestic animals are used as object lessons in the study of general pathology and anatomy.

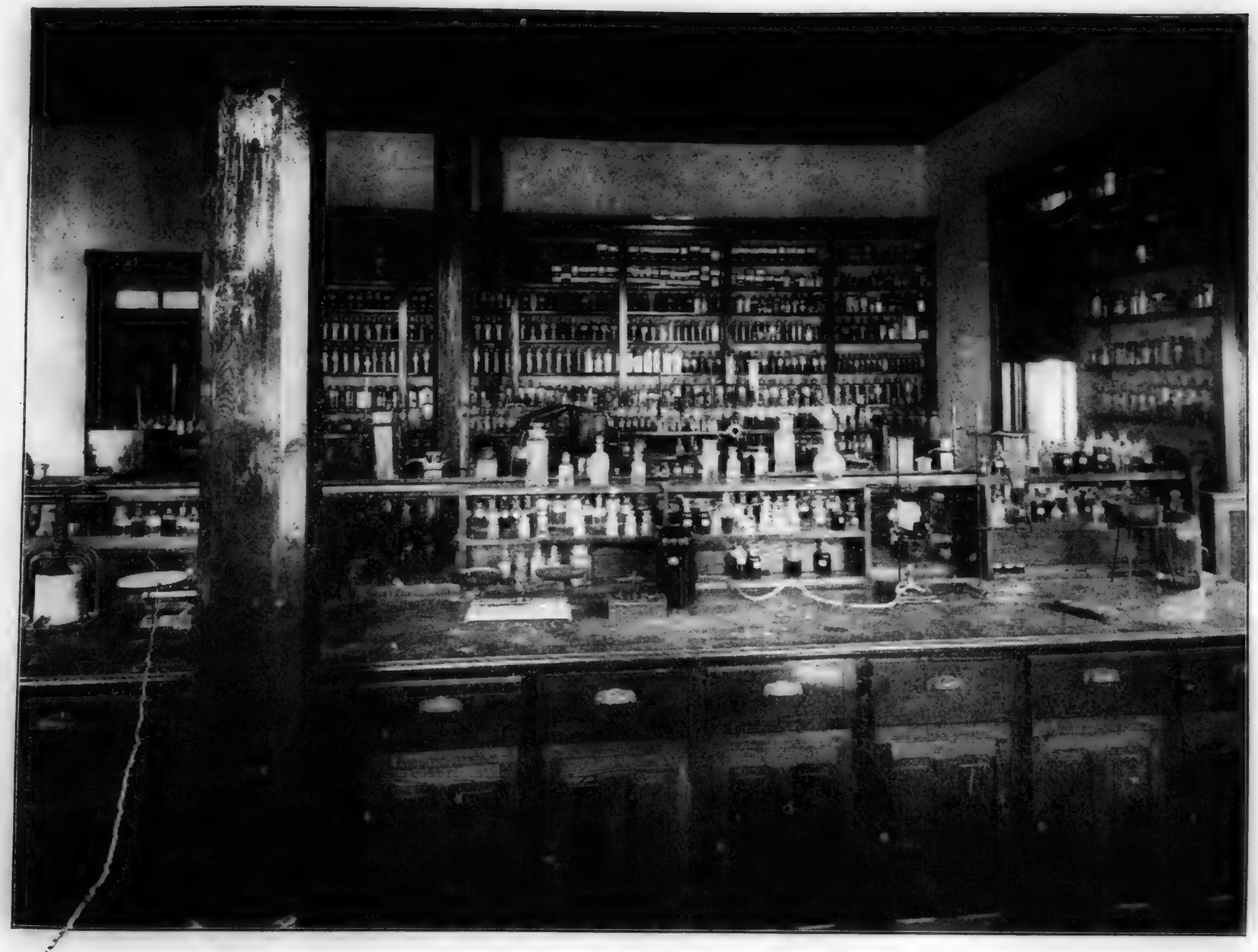
To the post-graduate student this department furnishes work in histology, pathology, bacteriology, meat and milk inspection. This work gives students who contemplate studying medicine excellent preparatory work along that line. Such students may devote one-half their time to work in this department with the approval of the Faculty.

Histology includes methods of injecting small animals, collecting, fixing, hardening, embedding, section cutting, mounting, staining, examining under the microscope, drawing and describing the different tissues.

Pathology is studied in text and reference books and morbid histology embraces naked eye and microscope examinations of diseased tissues in the laboratory. Quite a collection of diseased tissues and animal parasites is found in connection with the laboratory.

The laboratory is well fitted for the study of bacteriology. Bacteriological analysis of water, milk, sputum, pus, diseased tissues, and of soils can be made. All of the practical operations in the preparation of culture, media, sterilization, inoculations of small animals, staining, microscopical examinations, may be learned. In the laboratory are three Bausch & Lomb and two Winkel microscopes, each of which is supplied with oil immersion objectives, two oculars, Abbe condenser, and iris diaphragm. Sterilizers, autoclaves, incubators, and all the necessary apparatus required in bacteriological work are to be found in the laboratory.

The department of physiology and veterinary science is now located by itself in a building which consists of a two-story portion containing four laboratory rooms on the second floor and a lecture room, museum and office on the lower floor and a one-story part which contains an operating room.



LABORATORY OF PHARMACY.

The building is supplied with water and gas and the laboratory is now equipped for work. The museum contains the skeletons of the horse, the ox, the sheep, and the hog, and a human skeleton. It also contains anatomical models of the various parts and organs of the human body, and models of many parts of the horse, the ox and the other domestic animals. It also contains a collection of pathological and anatomical specimens, and one of animal parasites.

The new veterinary hospital building contains five large box-stalls, four open single stalls, an office and a feed room on the lower floor; the upper floor is used as a storage room for hay, fodder, etc. The hospital is supplied with fresh water.

This department has a new brick cement dissecting room (16x32). It is supplied with an extensive north skylight, and with water and gas.

Every Saturday during the college year the department conducts a free clinic for the benefit of the students in veterinary science and art. Clinical cases have been various and numerous, giving the students opportunity to see and study many diseases and lameness and to become proficient in minor operations.

BACTERIOLOGY AND THERAPEUTICS.

The senior class in pharmacy devotes six hours per week during the first and second terms to class room and laboratory work in bacteriology; and three hours per week during the third term to therapeutics.

PHARMACY AND PHARMACOGNOSY.

PROFESSOR MILLER.

ASSISTANT TROUTMAN.

JUNIOR YEAR.

Pharmacy.—Class work, *three hours* a week. The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in pharmacy. Apparatus used in pharmaceutical processes. Discussion of all classes of pharmaceutical preparations.

Laboratory, *nine hours* a week. Preparation of official and non-official galenicals.

Pharmacognosy.—Class work with laboratory work, *four hours* a week. All official vegetable drugs studied with aid of simple and compound microscope.

SENIOR YEAR.

Pharmacy.—Class work, *five hours* a week. Official and non-official pharmaceutical chemicals, inorganic and organic, including the more important newer remedies. The prescription. Incompatibilities. Doses.

Laboratory, *twelve hours* a week. Preparation of official and non-official pharmaceutical chemicals, inorganic and organic. Pharmaceutical testing by pharmacopœial methods. Drug assaying, special attention given to compounding of prescriptions.

Pharmacognosy.—Class work, with laboratory work, *four hours* a week. Study of important non-official vegetable drugs; of drugs of animal origin; of adulterants and worthless drugs. Practical exercises in identification of pharmaceutical preparations and chemicals.

The practical work in pharmacy includes the manufacture of not less than three hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 300 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

The work of the third year in the special course in Pharmacy embraces:

1. An advanced course in the manufacture of Galenicals and Organic and Inorganic Chemicals used in medicine.

2. A course in the testing of drugs and medicinal chemicals for impurities by Pharmacopeial methods.

3. A course in Pharmaceutical Assaying, including the assay of alkaloidal drugs, glucosidal drugs, resinous drugs, the valuation of fixed and volatile oils, pepsin, diastase, etc.

4. A course in Water Analysis.

5. A course in Milk and Butter Analysis.

6. A course in Physiological Chemistry.

7. A course in Organic Preparations.

8. An advanced course in Toxicological Analysis.

9. The presentation of a satisfactory Thesis.

Any one who completes the work of the three-year special course in such a manner as to prove himself a competent analyst will be granted a certificate as Pharmaceutical Chemist.

HORTICULTURE.

PROFESSOR MACKINTOSH.

ASSISTANT SARGENT.

Instruction in horticulture is given in the junior year. Class work consists of lectures, text-book work, reference reading and practice work in the greenhouse laboratory, gardens and orchards of the Experiment Station.

It is the aim to give considerable practice work so as to enable those taking the course to do the detail work in budding, grafting, making of cuttings, mixing spray materials and spraying, etc.

The subjects studied will be the growing of the various fruits and vegetables for home use and market, including methods of propagation, culture and fertilization of soil, gathering and marketing, and the insect and fungous diseases, with best methods of controlling them.

Text-books to be announced later.

MILITARY SCIENCE AND TACTICS.

COL. B. S. PATRICK, COMMANDANT.

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company and of the battalion in close and extended order, also in guard mountings, inspections, dress parades, reviews, etc.

Under Section 1225, U. S. Revised Statutes, the College is provided with modern cadet rifles and accoutrements.

The following uniform of standard cadet gray cloth has been prescribed for dress: Coat and trousers as worn for fatigue

at West Point, with dark blue cadet cap. A neat and serviceable uniform can be obtained here at $15 to $16. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct and scholarship. The commissioned officers will be selected from either the senior or junior classes, and promotion will depend on merit and not wholly on seniority.

A band, composed of cadets, furnishes appropriate music at all reviews and parades, and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the President and the Commandant. The resignation of an office will usually not be considered without first placing all the circumstances of the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Examinations will be conducted by a board of officers, to be composed of the Commandant of Cadets and two commissioned officers, to be designated by him. The proceedings of the board are subject to revision and approval by the President of the College.

Each company is officered by one captain and two first lieutenants, one second lieutenant, and with a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The junior class recites once a week in the United States Infantry Drill Regulations.

The senior class recites once a week in Wagner's Security and Information, and Manual of Guard Duty, U. S. Army.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. army, and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.



CORPS OF CADETS.

CADET BAND.

The cadet band is a part of the military organization of the College. It takes part in the military and other exercises, and plays when its services are required.

Regular and individual instruction is given free of charge by the bandmaster. A text-book on general musical information is used in connection with the practical instruction.

A gold medal is given each year by the bandmaster to the member of the band who makes the best general record for the year. The presentation is made at Commencement.

MISCELLANEOUS.

GYMNASIUM AND ATHLETIC FIELD.

The gymnasium is situated at the west end of the athletic and drill grounds, and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures.

It is equipped with Spalding's gymnasium apparatus and is open to all students at stated hours, under the care of an officer.

The athletic field has a quarter-mile cinder track and ample space for football, baseball and general athletics.

DISCIPLINE.

The government of the College is administered by the President and Faculty in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study and punctuality in attendance on recitations and all other duties, are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the College limits, intoxicating liquors.

Students are not permitted to participate in any public entertainment, or game, without previously obtaining the consent of the Faculty.

No cadet will be permitted, without the approval of his parent or guardian, to take part in a public game of football; nor will per-

mission be given for any athletic game to a student deficient in his studies.

MILITARY DRILL.

There are three regular military drills each week and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This association is regularly organized and has a well furnished room on the first floor of a building set apart for its exclusive use. Through its weekly meetings it exerts a wholesome Christian influence among the students.

Students are advised to unite with the association when they enter the Institute.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of this Institute. Assisted by members of the Faculty, they will hold monthly a joint service of praise in the College chapel, and will provide lectures for the occasion.

They have also undertaken to build a special hall for the use of the Association, and will solicit subscriptions for that purpose.

The following are the officers:

Walter R. Samford .....President.
C. K. Gould .....Vice-President.
G. B. Skinner ..... Corresponding Secretary.
J. M. Poyner ..... Recording Secretary.
O. B. Cooper ..... Treasurer.
H. M. Averyt ..... Librarian.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide-water. By statute of the State the sale of spirituous liquors and keeping saloons of any kind are forbidden.

BOARDING.

The Institute has no barracks or dormitories, and the students board with families of the town of Auburn, and thus enjoy all the protecting and beneficial influence of the family circle.

REGULATIONS.

(1) Each student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the College.

(2) Every absence from recitation or examination is graded zero.

(3) When the term grade of a cadet is lowered by reason of absence for which satisfactory excuse can be rendered, a special term re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(4) Only sickness, as reported by the Surgeon, or absence by reason of family sickness, or official or collegiate business, will constitute a satisfactory excuse for granting a re-examination.

When a cadet is called away from college by his parents for reasons other than those specified above his zeroes for absence are not removed.

(5) The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

(6) Privates of the senior class in full standing who are candidates for graduation may be excused by the President from all military drills, and also students over twenty-one years of age at the time of entering College that are permitted to devote their time to one special study, as chemistry, agriculture, or pharmacy, provided the time devoted to drill is spent by them in laboratory work.

No cadet can remain an officer who receives during the session more than seventy-five demerits.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of distinction are awarded in public on Commencement day to those who obtain an average of ninety per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class; provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

HONORS.

Members of the senior class who attain distinction at the final examinations with an average grade, in the subjects required, of 95 per cent. will be published as

GRADUATES WITH HIGHEST HONOR.

Those who attain distinction with an average grade of 90 per cent. and less than 95 are published as

GRADUATES WITH HONOR.

Those who attain less than 90 per cent. and more than 60 per cent. are published as *Graduates*.

Students of the classes lower than the senior, who attain distinction with an average grade in the required subjects of 95 per cent. are published in alphabetical order as having attained the *Highest Distinction*.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervals reports giving the grade made by each student are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the month are held by each professor during the months of October, February and April. Each examination occupies one hour.

At the end of each term written examinations, or written and oral, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations, can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except for providential reasons.

The following scholarships and prizes have been established:

THE WILLIAM LEROY BROUN MEMORIAL SCHOLARSHIP OF $170, established by the Alumni Society in memory of the late distinguished President of the Institute.

THE LIGON SCHOLARSHIP OF $170, established by Col. R. F. Ligon, Montgomery, Ala.

THE THOMAS SCHOLARSHIP OF $170, established by Judge William H. Thomas, Montgomery, Ala.

THE BALL SCHOLARSHIP OF $170, established by Mr. Fred S. Ball, Montgomery, Ala.

THE DUNKLIN SCHOLARSHIP OF $600, established by Mr. and Mrs. J. C. Street, Anniston, Ala., in memory of Prof. J. T. Dunklin, formerly Professor of Latin in the Institute.

The scholarships enumerated above are loan scholarships, granted to worthy young men or women, to be returned after graduation. No interest is charged until one year after leaving college.

The above-named scholarships and ten other scholarships are administered by the Alumni Society. For information address Wm. O. Scroggs, Secretary.

PRIZES.

THE ORATORICAL PRIZE, medal to that member of the Junior class who composed and delivers the best oration on Junior Class day of Commencement.
1903, *John McDuffie,* Monroe County.

THE ORATORICAL PRIZE for the Annual Inter-Literary Society Contest, February 22d.
1904, *K. L. Forrester,* Houston County.

SOPHOMORE MEDAL IN DECLAMATION for annual contest, May 1st.
1903, *Walter R. Samford,* Lee County.

PRIZE FOR BEST DEBATER, a medal given annually by the Board of Trustees to the best debater in the Wirt and Websterian Literary Societies each.

A GOLD MEDAL, offered by Lewis Chapter of the Daughters of the American Revolution for the best historical paper by a young woman student. 1903, *Miss Sallie Fleming Ordway,* Tennessee.

A PRIZE OF FIFTY DOLLARS, offered by the Colonial Dames of Alabama, for the best historical paper on a colonial subject written by a young man student. 1903, awarded to *T. J. Dowdell.* Montgomery, Ala.

THE THOMAS ESSAY PRIZE, a gold medal offered by Judge William H. Thomas, of Montgomery, Ala., for the best written essay by any undergraduate student of the college. This essay must be written under the supervision of the department of English. 1903, awarded to *Louis Warren Duffee,* Mobile, Ala.

BATTALION MEDAL for best drilled soldier. 1903, *B. L. Shi,* Georgia.

BATTALION SWORD for best drilled soldier. 1903, *T. H. Matson,* Talladega County.

PRIZE FOR BEST DRILLED COMPANY, a sword given by Board of Trustees. 1903, *W. W. Rutland,* West Point, Ga.

LIBRARY.

The Library occupies an elegant well-lighted room in the main building, and also three adjacent rooms. It contains over 18,-



GENERAL LIBRARY.

000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

MUSEUM.

The Museum occupies a large room in the third story. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character.

BOARDING HOUSES.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after "call to quarters," or are guilty of any violation of order. The report of the inspector is made to the Commandant on alternate days of the week.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the President, and this permission is given only at the close of a term, except for special reasons.

Permission to board and lodge at separate houses will be granted only to seniors, to cadets twenty-one years of age, and to those who are on the "honor roll," except on special conditions.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Incidental fee, per session	$5 00
Library fee, per session	2 00
Surgeon's fee, per session	5 00
	$12 00

These fees are payable on matriculation. By order of the Trustees no fees can be remitted.

For students entering after January 1st, the fees for a half session only are required.

Board, including lodging, fuel and lights, is furnished at $12.50 to $15.00 per month.

For a non-resident of the State there is a charge for tuition of $20.00 per session, payable on matriculation, in addition to the annual fee of $12.00 payable by all students.

The necessary expenses for a session, not including uniforms or books, are for a resident of Alabama, as follows:

College fees	$12 00	$12 00
Board, lodging, fuel and lights	112 50	135 00
Washing	9 00	9 00
Total	$133 50	$156 00

By special arrangement with the College authorities, Mrs. M. L. Mitchell, Mrs. M. E. Howe and Mr. B. T. Blasingame will accommodate students with board lodging, fuel, etc., for $9.50 per month.

By boarding at one of these houses the necessary expenses may be reduced to $106.50 per session. This estimate does not include the cost of the uniform, about $15.00, or of books, say from $5.00 to $15.00, or the laboratory fees in the higher classes, $5.00 or $10.00.

LABORATORY FEES.

For each student in the junior or senior laboratory in pharmacy, chemistry, or in electrical or mechanical engineering, a fee of $2.50 per session is required for each department. This fee is payable *on admission to the laboratory,* and is not remitted.

NON-RESIDENT STUDENTS.

Tuition for students, not residents of Alabama, is $20.00 per session, unless remitted by the Trustees to worthy students upon the recommendation of the Faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year, to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remitted to sons of ministers of the gospel.

HONOR SCHOLARSHIPS.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1902-1903, an honor scholarship, which exempted from tuition fees:

John Cleveland Bryan	Georgia.
Ralph Dudley	Georgia.
Berner Leigh Shi	Georgia.
Hiram Victor Arnold	Florida.
George Bridges Foss	Mississippi.

UNIFORMS.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made by a contractor, and are of excellent cloth manufactured at the Charlottesville mill. This suit, including cap, costs at present, $15.40. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to College property for which he may be liable. General damages are assessed on the body of students.

At the close of the session the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

Fees to be paid on entrance:

Incidental fee	$ 5 00	
Library	2 00	
Surgeon	5 00	
Contingent fee	5 00	
Uniform	15 40	
For a resident of Alabama	$32 40	$32 40
Tuition non-resident		$20 00
For a non-resident		$52 40

Besides the above, the student should deposit with the Treasurer enough to pay for books, one month's board, incidentals, amounting to say, $27.50. Hence, a resident of Alabama should deposit with the Treasurer $60.00; a non-resident, $75.00.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons or wards, whether for regular charges or college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited checks are drawn on the Treasurer of the College by the cadet to pay his necessary expenses. These checks are paid only when officially approved. The approval is given only for necessary expenses, as stated in the catalogue, unless specially requested in writing by the parent.

, The College cannot be held responsible for the expenses of a student, unless the funds are deposited with the Treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty a thesis, or oration, and read and deliver the same at Commencement, if required by the Faculty.

There may be presented, with the approval of the professor in charge, a carefully written report of special work done in a laboratory, showing independent investigation and discussion of some subject.

It must be given to the Professor of English by the first of May.

The subject must be submitted for approval by January 1st.

LITERARY SOCIETIES.

There are two literary societies connected with the College—the Wirt and the Websterian. Each has a hall in the main building.

These societies hold celebrations on the evenings of Tranksgiving Day and 22d of February. A gentleman, selected by

the Faculty, is invited to deliver an address before the Literary Societies at Commencement.

To encourage the literary societies the Trustees have directed that a medal be awarded on Commencement Day to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection is determined by the Faculty.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in the presence of the Faculty and students.

The *first and second terms* the students of the junior and sophomore classes are exercised in original orations and in declamations.

The *second and third terms* the members of the senior class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society in Langdon Hall, on Alumni Day, Tuesday of Commencement week.

Thomas D. Samford, '88, Opelika, Ala.....President.
R. F. Ligon, '82, Montgomery, Ala.....Vice-President.
William O. Scroggs, '99, Auburn, Ala.....Secretary.
B. H. Crenshaw, '89, Auburn, Ala .....Treasurer.
William H. Samford, Troy, Ala.....Orotar for 1904.

SURGEON.

The surgeon is required to be present at the College daily, to visit at their quarters the cadets that are reported sick, and to give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering college.

ACADEMIC YEAR.

The academic year for 1904-1905 commences on Wednesday, 7th September, 1904, and ends on Wednesday, 7th June, 1905, which is Commencement Day.

It is divided into three terms. The first term extends from the opening of the session to the 23d December; the second term begins Wednesday, January 4th, and ends March 11th; the third term continues to the close of the session.

DONATIONS TO THE LIBRARY.

United States Government.—Public Documents, 242 volumes.

Harper & Brothers, New York.—The Rise and Progress of the Standard Oil Company. By Gilbert H. Montague.

J. G. Brill Company, Philadelphia.—The Car Builder's Dictionary.

W. & L. E. Gurley, Troy, N. Y.—Manual of American Engineers' and Surveyors' Instruments.

The National Sound Money League, New York.—The History of Coinage and Currency in the United States. By A. Barton Hepburn.

H. W. Bell, New York.—Letters and Addresses of Abraham Lincoln.

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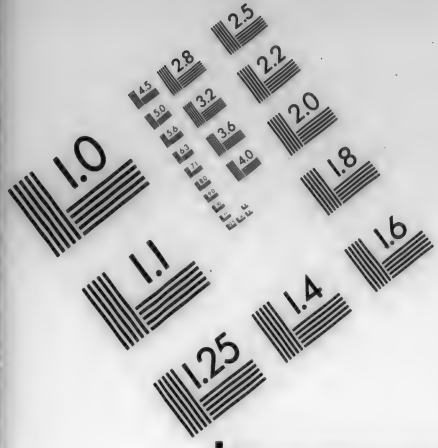
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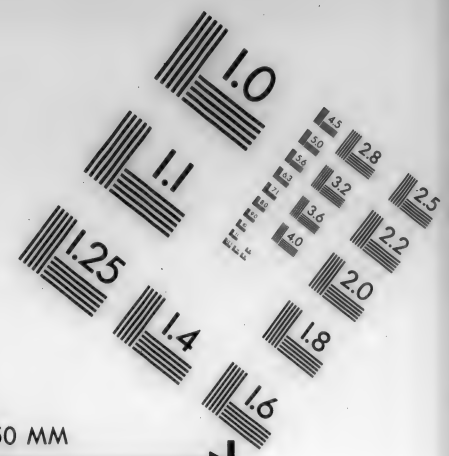
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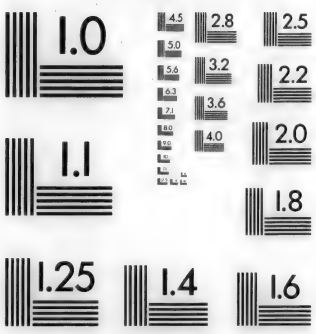
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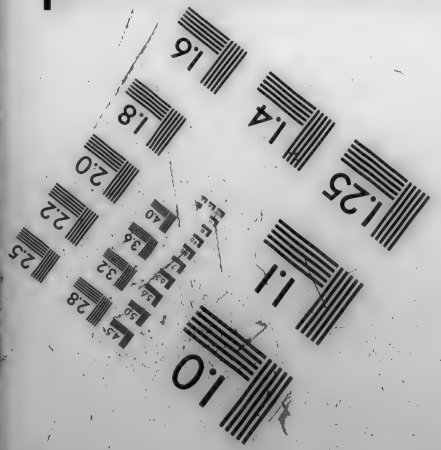
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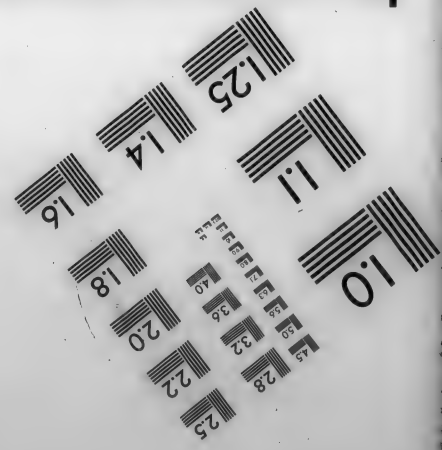
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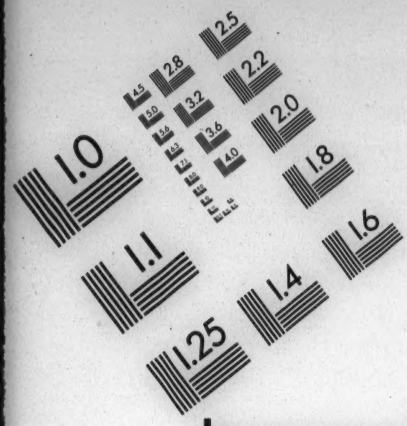


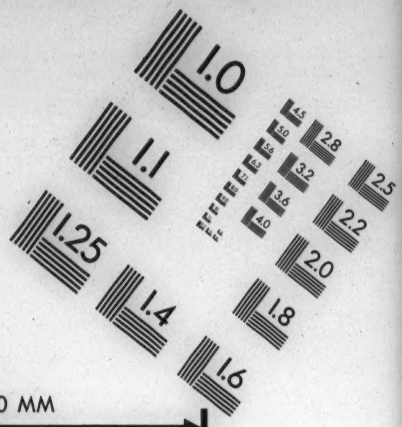


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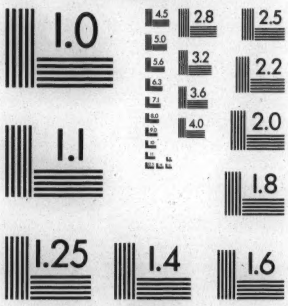
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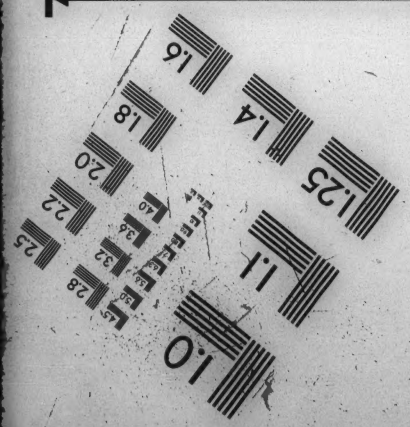
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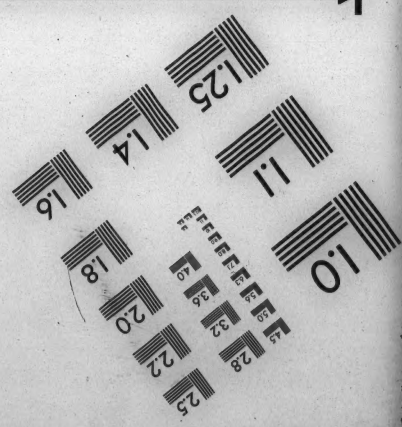
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